

**LANXESS**

# **FACT BOOK**

**7<sup>th</sup> Edition – November 2019**

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November 2019

## Dear friends of LANXESS,

Since the last edition of the LANXESS factbook was published in 2017, **the face of LANXESS has substantially changed.** Our transformation is well on track and we have already reached important milestones on our journey to make LANXESS a more resilient, more profitable and more sustainable company. **This factbook provides you with a deep dive into LANXESS' businesses and the drivers to execute our strategy.**

We continued to upgrade our portfolio with several transactions. The biggest impact surely came from the faster than scheduled exit from the rubber JV ARLANXEO. Thus, we substantially reduced dependency on volatile raw materials and more than halved the automotive end market exposure to currently ~20%. We further strengthened our set-up by acquiring the U.S. phosphorus business of Solvay and divested several non-core businesses.

With the **disposal of the 40% stake in the site service provider CURRENTA**, we will monetize significant hidden reserves and secure our strategic interests on a long-term basis. The exit of the Chrome Chemicals business is part of the realignment of our Performance Chemicals segment towards specialty chemistry with focus on regulated Consumer Protection Chemicals.

**Operationally, the acquired Chemtura businesses were integrated faster than targeted.** The majority of identified cost synergies of €100m have already been realized. We improved our end market split, making it more balanced and less dependent on the automotive industry, as well as establishing a more balanced global footprint, now with a greater presence in growth markets like Asia and the U.S. All of our businesses have leading market positions in attractive medium-sized or niche markets.

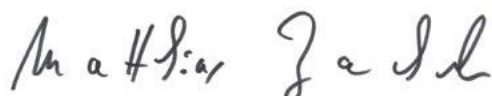
Our organic investments into brownfield and de-bottlenecking projects will total €400 m in 2020, since their announcement in 2017 – and contribute to growth and improved margins with an average ROCE of 20%. As a result, we already entered the corridor of 14 to 18% EBITDApre margin targeted through the cycle - despite a difficult environment. And we will continue to invest and improve our businesses by further realignments.

We also significantly improved our financial position. **The ARLANXEO exit led to a meaningful net debt reduction.** Part of the proceeds were used for a share buyback and pension funding. Additionally, our solid financials will be further improved by the proceeds of the Currenta divestment in Spring 2020. Thus, we have accomplished a strong balance sheet and financial flexibility. We intend to use this flexibility as a sound platform for further growth while maintaining our commitment to a solid investment grade rating.

We are convinced that economic growth has to be based on sustainable goals and an applied corporate responsibility. **LANXESS is committed to the Paris Agreement and has stipulated its corporate responsibility goals according to the United Nations' Sustainable Development Goals.** As one of the first global chemical companies to commit, LANXESS has defined a clear path to reduce CO<sub>2</sub> emissions and become climate neutral by 2040. Sustainability is a priority to us and we will seize it as a competitive advantage.

**We are excellently positioned to keep growing profitably and create even more value in the future.**

Sincerely,



**Matthias Zachert**  
Chairman of the Board of Management

# LANXESS

Energizing Chemistry

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## LANXESS – A globally operating specialty chemicals company

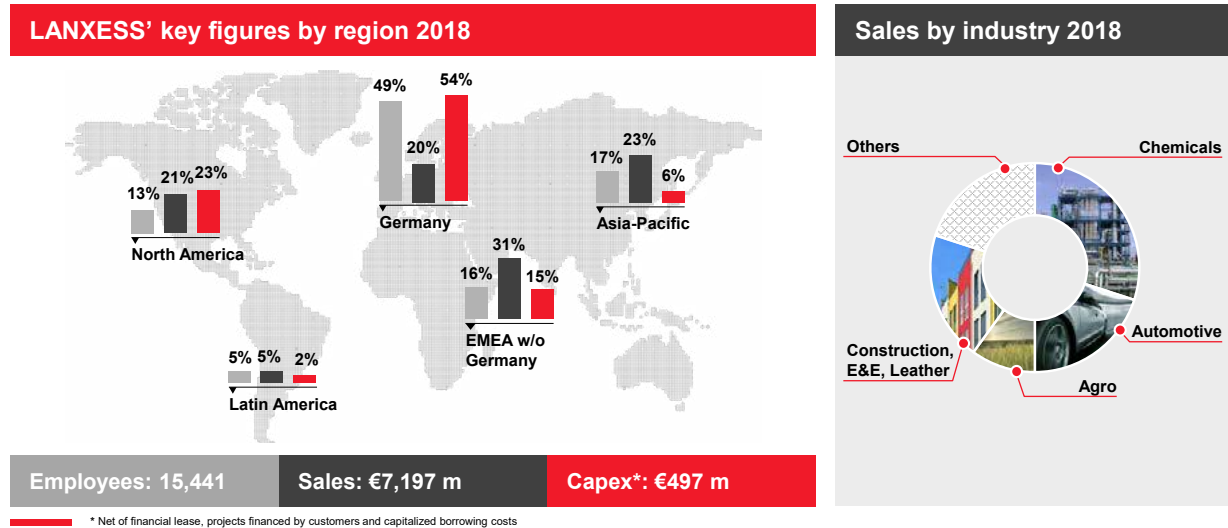
<p><b>Specialty chemicals company</b></p>		<ul style="list-style-type: none"> <li>▪ Spin-off from Bayer in 2004</li> <li>▪ Specialty chemicals portfolio: Chemical intermediates, additives, specialty chemicals and engineering materials</li> </ul>
<p><b>Global success story</b></p>		<ul style="list-style-type: none"> <li>▪ 60 production sites worldwide</li> <li>▪ Approximately 15,400 employees in 33 countries</li> <li>▪ Global sales of €7.2 bn in 2018</li> </ul>
<p><b>Focus on profitability and resilience</b></p>		<ul style="list-style-type: none"> <li>▪ Strengthening of leading positions in medium-sized markets</li> <li>▪ Consolidation in Europe, expansion in USA and Asia</li> </ul>

## LANXESS – A global specialty chemicals group

Advanced Intermediates	Specialty Additives	Performance Chemicals	Engineering Materials
			
<ul style="list-style-type: none"> <li>▪ Advanced Industrial Intermediates</li> <li>▪ Saltigo</li> </ul>	<ul style="list-style-type: none"> <li>▪ Lubricant Additives Business</li> <li>▪ Polymer Additives</li> <li>▪ Rhein Chemie</li> </ul>	<ul style="list-style-type: none"> <li>▪ Material Protection Products</li> <li>▪ Inorganic Pigments</li> <li>▪ Leather</li> <li>▪ Liquid Purification Technologies</li> </ul>	<ul style="list-style-type: none"> <li>▪ High Performance Materials</li> <li>▪ Urethane Systems</li> </ul>
<p><b>Group Functions and countries</b></p>			

**Business unit set up fosters dedication and entrepreneurship**




## LANXESS well diversified, worldwide present and serving a broad range of customers



## LANXESS with clear strategic focus: Building a more balanced company

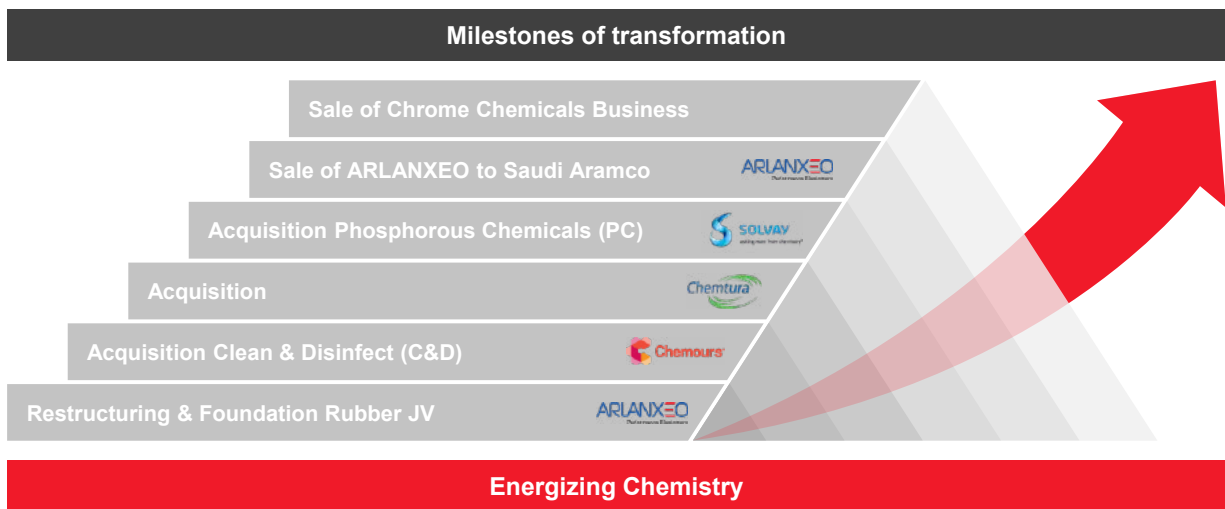


## Organization with global responsibility – The board of LANXESS AG

Matthias Zachert CEO	Hubert Fink Board of Management	Michael Pontzen CFO	Rainier van Roessel Board of Management	Anno Borkowsky Board of Management
				
<ul style="list-style-type: none"> <li>Corporate Communications</li> <li>Corporate Development</li> <li>Digital Transformation</li> <li>Legal &amp; Compliance</li> <li>Performance Culture</li> </ul>	<ul style="list-style-type: none"> <li>Global Procurement &amp; Logistics</li> <li>Production, Technology, Safety &amp; Environment</li> <li>Business Units                             <ul style="list-style-type: none"> <li>Advanced Industrial Intermediates</li> <li>Saltigo</li> <li>High Perf. Materials</li> <li>Urethane Systems</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Accounting</li> <li>Corporate Controlling</li> <li>Information Technology</li> <li>Mergers &amp; Acquisitions</li> <li>Tax &amp; Trade Compliance</li> <li>Treasury &amp; Investor Relations</li> <li>Global Business Services</li> </ul>	<ul style="list-style-type: none"> <li>Human Resources</li> <li>Performance Culture</li> <li>Business Units                             <ul style="list-style-type: none"> <li>Material Protection Products</li> <li>Inorganic Pigments</li> <li>Liquid Purification Technologies</li> <li>Leather</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Business Units                             <ul style="list-style-type: none"> <li>Lubricant Additives Business</li> <li>Polymer Additives</li> <li>Rhein Chemie</li> </ul> </li> </ul>

Board of Management is dedicated to all aspects of a sustainable, resilient, and successful business

## Our path towards a more resilient and attractively growing LANXESS





# LANXESS – A sustainable and reliable partner for the future

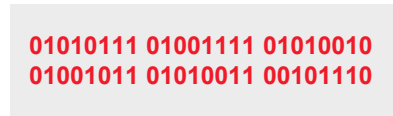
**Committed to Sustainability**

- Clear target definition to become climate neutral until 2040
- Member of Dow Jones Sustainability World & Europe Index and Carbon Disclosure Project (CDP)



**Driving Digitalization**

- Driving new digital business models
- Close collaboration with customers to develop digital integration



**Leveraging Critical Mass**

- Stock-listed company with €7.2 bn sales
- Financial resources to support growth

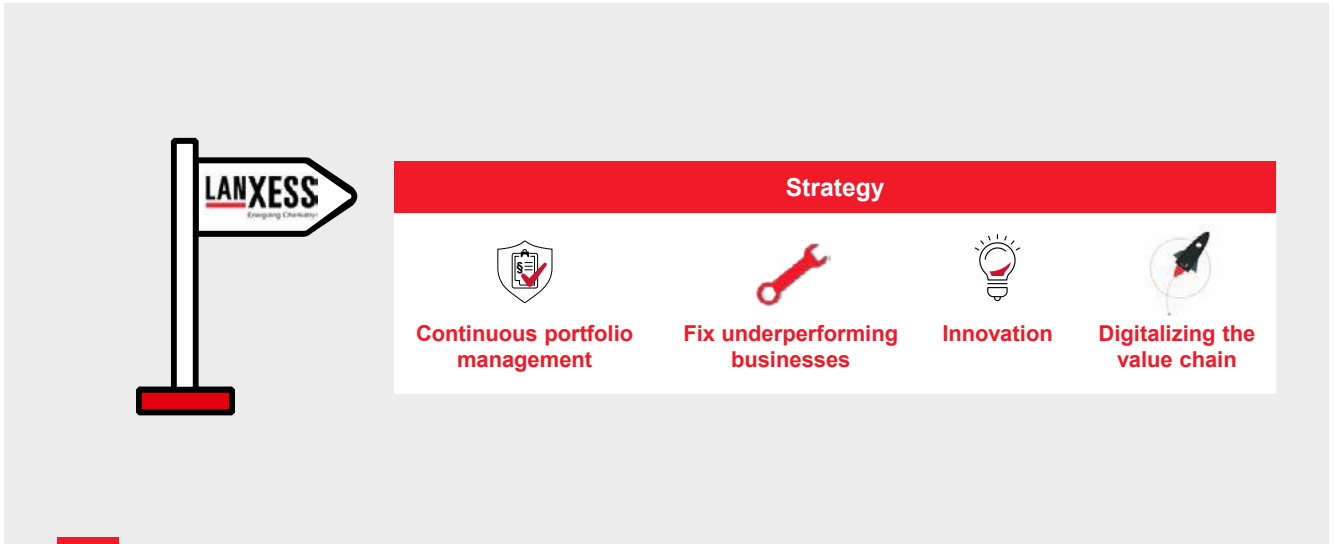


**Living Performance Culture**

- Differentiating by a fast, dynamic and agile corporate culture



## The way forward – Providing direction from four perspectives



## The way forward – Continuous Portfolio Management



## Perfect match: The characteristics of Consumer Protection Chemicals and our competences



### Characteristics:

- **High entry barriers** due to increasing regulation
- Strong **expertise in Regulatory Affairs**
- **Data ownership\*** essential for product registration
- Attractive **secular growth**, independent of industry cycles



### Our competences:

- **Global set-up in Regulatory Affairs**
- **Regulatory competence:** One of the largest global expert teams in the industry
- **Unique Portfolio** in Animal Protection Chemicals

\* Identity, phys.-chem, analytical, methodology information

## LANXESS Consumer Protection: Our products follow strong application-driven trends



### Food Safety:

⌞ **~5%**  
 Sales CAGR\* (2013–2019)

**X\_Velcorin®**



### Water Purification:

⌞ **~5%**  
 Sales CAGR\* (2013–2019)

**X\_Lewatit®**



### Biosecurity:

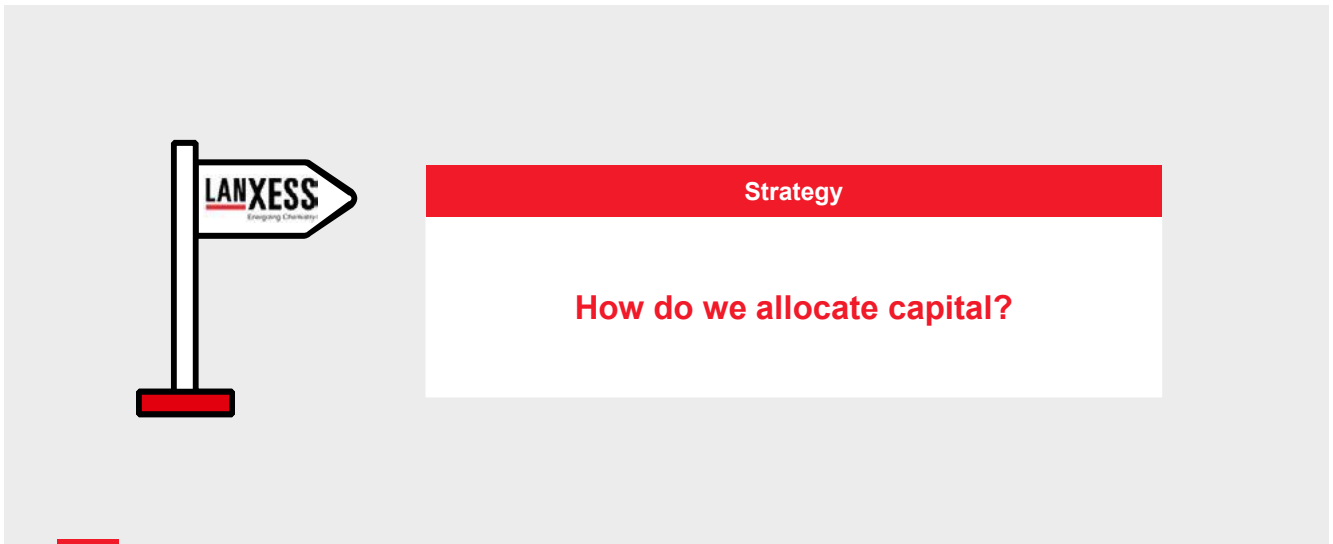
⌞ **~27%**  
 Sales CAGR\* (2017–2019)

**>Virkon™**



\* CAGR figures represent LXS sales growth

## The way forward – Continuous Portfolio Management II



### Capital allocation follows clear individual strategies for each business

	Organic growth/Capex	Likelihood for M&A	Turnaround
<b>Advanced Intermediates</b>	●	◐	Organometallics
<b>Specialty Additives</b>	●	◐	Rubber additives
<b>Performance Chemicals</b>	●	●	Chrome value chain Membranes business
<b>Engineering Materials</b>	●	◐	

## The way forward – Fix underperforming businesses

**Strategy**

Which businesses are we addressing?

## Rigorously addressing under-performing businesses across our portfolio

**Sales of businesses to be addressed**  
 ~€800 m

Leather<sup>1</sup> | OMS | Membranes | Rubber additives

**Margin Level:** ~8%

**Transforming action**

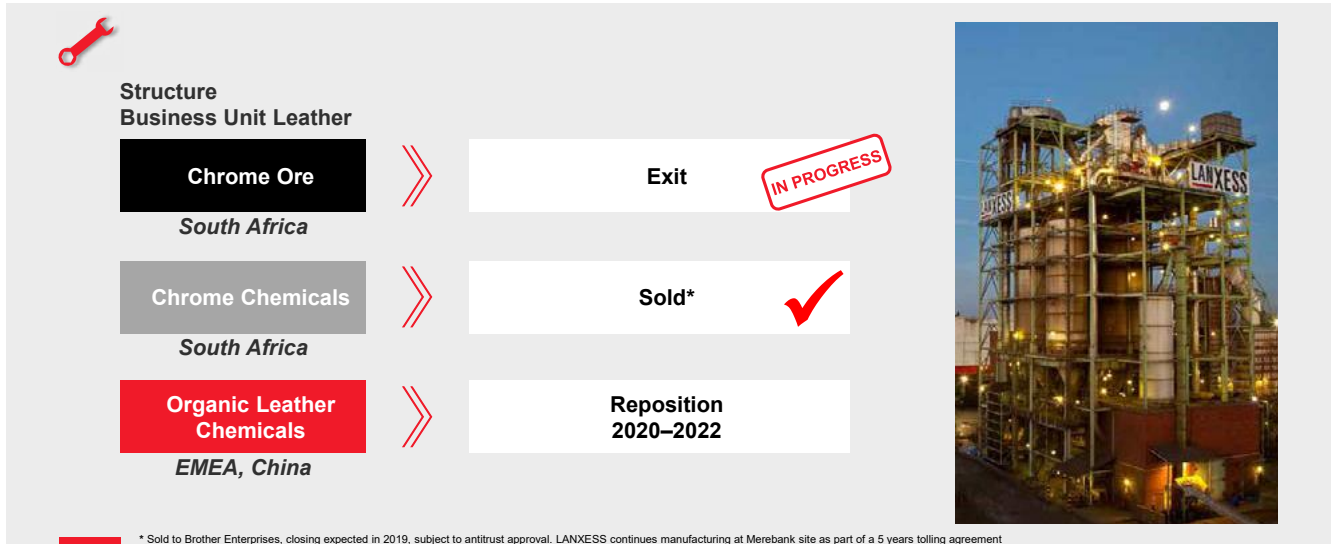
- Solving the Chrome problem
- Accelerating OMS performance to peer level
- Turnaround Rubber Additives and Membrane businesses

**Target structure**  
 ~€500 m

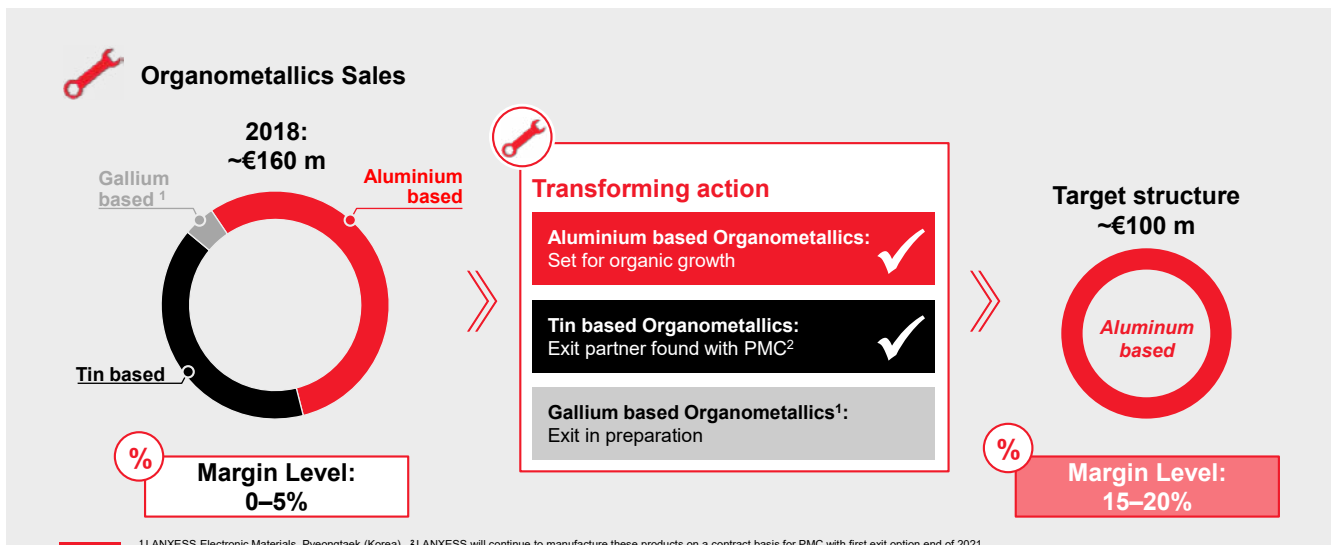
**Margin Level:** >15%

<sup>1</sup> Realignment focused on Chrome value chain, sales contribution includes Chrome Chemicals, sold to Brother Enterprises, closing expected in 2019, subject to antitrust approval

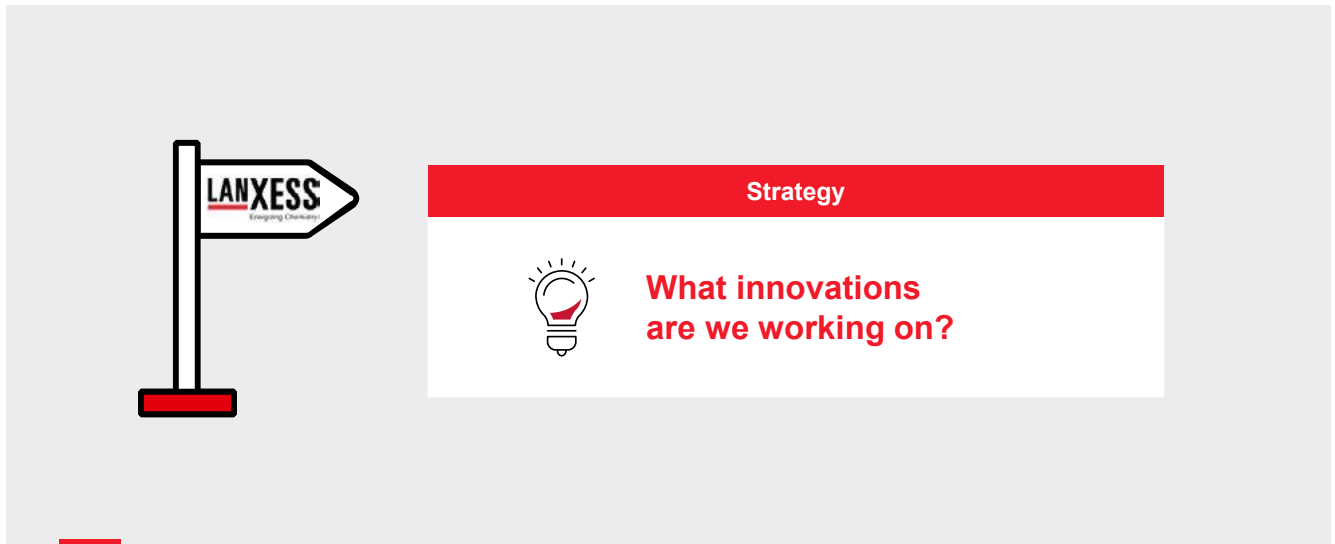
## Strong progress in solving the Chrome problem



## Strong progress in improving Organometallics' performance to competitive peer level



## The way forward – Innovation



## We focus on product, process, and technology innovation

**Our Philosophy**

- Result-oriented product innovation
- Process innovation with focus on energy & resource efficiency
- Technology innovation that will change chemical business models (esp. digitalization)

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**Global innovation platform**

- 33 application centers in 14 countries focusing on product innovation
- Dedicated task force teams continuously optimize production processes worldwide
- Centralized digital team to introduce new technologies and change business models

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**Strong alliances**

- More than 150 research cooperations with customers, universities and other research institutes worldwide
- Collaboration with leading AI specialists Citrine, Palantir, et al.

LANXESS Fact Book 2019

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## Identifying innovations that fit to our business – A natural preservative derived from an edible fungus



### Acquisition of IMD Natural Solutions completed in 2017

- 9 FTE with a lab in Dortmund, Germany

#### Rationale

- Strong trend to replace chemicals with natural preservatives
- LANXESS has a global sales force and regulatory expertise
- Currently no comparable natural product on the market

#### Potential:

- Key market: USA; FDA approval received in 2018, further market approvals in preparation
- First meaningful sales in 2020
- Full potential to be reached 2025–2030

Accessible  
 initial market  
 (USA)

~€200–  
 250 m

## Identifying innovations that fit to our business – Tepex: Fiber reinforced high performance plastic



### Acquisition of Bond Laminates completed in 2012

- ~80 FTE.
- Purchase Price: ~€35 m, additional investments to follow

#### Rationale

- Leading manufacturer of thermoplastic composites
- Customer advantages:
  - Easier product handling
  - Potential to reduce production costs
  - Product functionality (strength and stiffness)

#### Potential:

- Strong market potential e.g. in automotive, consumer electronics, industry, and sports (e.g. solar panels, helmets)

~€300 m  
 sales potential  
 in 2030



## We consider E-Mobility as a major opportunity



### E-Mobility: Key driver for battery growth

- Battery demand grew by 30% p.a. (2010-2018) to 180 GWh<sup>1</sup>
- Globally, E-Mobility will account for >85% of total battery demand<sup>2</sup>

### High share of chemicals

- Chemicals account for >50% of total cost of battery cells
- Announced cell capacities lead to €8-9 bn p.a.<sup>3</sup> chemicals demand

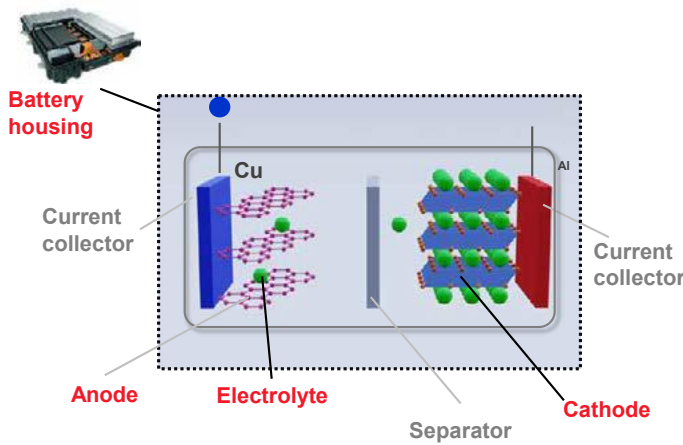
### Growth markets

- Changing battery market: An Asia dominated market will turn into a global market with increasing shares for EU & US
- E-Mobility growth drives ramp-up of cell production sites in Europe
- Supportive governmental regulation



<sup>1</sup> Global Battery Alliance <sup>2</sup> relates to 2030 / McKinsey / <sup>3</sup> VCI, from 2025 onwards

## LANXESS offers key products for Li-Ion batteries



### Battery Housing

- PA/PBT compounds for new components of the e-powertrain (BU HPM)

### Electrolyte

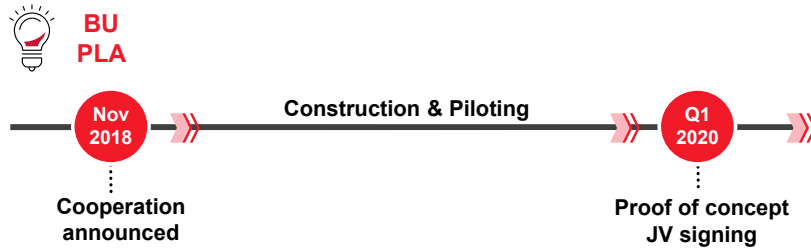
- Key materials (Hydrofluoric acid, phosphorus chemicals) for electrolyte salt (LiPF<sub>6</sub>) (BU AII/BU PLA)
- Flame retardants (BU PLA)

### Cathode & Anode

- Iron oxide as precursor for cathode active material (BU IPG)
- Ion-exchange resins for refining battery grade cobalt, nickel and lithium (BU LPT)
- Lithium chemicals from tail-brine (BU PLA)\*

PA = Polyamid / PBT = Polybutylenterephthalat PLA = Polymer Additives AII = Advanced Industrial Intermediates IPG = Inorganic Pigments HPM = High Performance Materials LPT = Liquid Purification Technologies  
 \* In case of successful feasibility

## Cooperation with Standard Lithium could deliver upside in a promising market



### JV characteristics\*

- 60–70% LANXESS ownership
- Exclusive access to technology in Smackover formation
- Absorption of El Dorado infrastructure cost

### Project rationale

- Use existing site infrastructure
- Brines from bromine wells in El Dorado contain Lithium
- Lithium demand growing double digit
- Limited additional cost during piloting
- In case of successful pilot project: €100–400 m capex possible\*\*

\* In case of successful feasibility  
 \*\* 100% capacity basis, across multiple phases

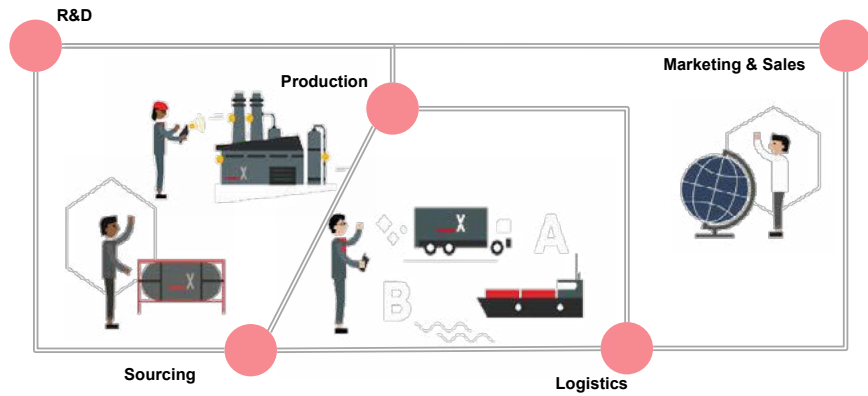
## The way forward – Digitalizing the value chain

The graphic shows a white signpost with a red base and a red arrow pointing right, containing the LANXESS logo. To its right is a red rectangular box with a white background. Inside the box is a rocket icon and the text "Strategy" in white above "What are we focusing on?" in red.

# Digitalizing the value chain LANXESS to be digital leader in the chemical industry



**From itemized elements ...** ... towards a fully integrated digitalized value chain:



# Digitalizing the value chain: Chemondis Paving the way to the future of trading chemicals






- Project start in 2017:  
LANXESS' chemical industry knowledge combined with external digital experts
- Pioneering into digital trading platform for chemicals to get ready for digital future
- First minimal viable product (MVP) created in 2018, preparation of fully separated industry platform


- Largest and fastest growing B2B marketplace for industrial chemicals in the western world
- Exceptional team of skilled and dedicated experts combining chemical, digital and technical know-how
- Unique setup, backed by industry know-how and capital

\*CheMondis is a stand-alone company, neither run, governed nor represented by LANXESS

## LANXESS pursuing sustainability as strategic goal in all dimensions

... sustainable operations...	...environmental performance...	...our products...
		
<p>We consider sustainability as competitive advantage and license to operate</p>		

## Powerful societal drivers are changing the face of the chemical industry

	<p><b>Climate</b> EU/World committed to keeping worldwide temperature increase “well below 2 degrees” in the Paris Agreement</p>
	<p><b>Circular Economy</b> Develop new resource neutral production pathways, reduce resource consumption and achieve climate targets</p>
	<p><b>Sustainable Finance</b> Financial investments to be directed towards low carbon projects and circular economy (e.g. EU Sustainable Finance Action Plan)</p>
	<p><b>Sustainable Development Goals (SDG):</b> Most comprehensive global sustainability framework</p>

Ability to successfully connect to societal drivers and yield positive impact is key

# LANXESS' Corporate Responsibility creates alignment with societal drivers for greater sustainability



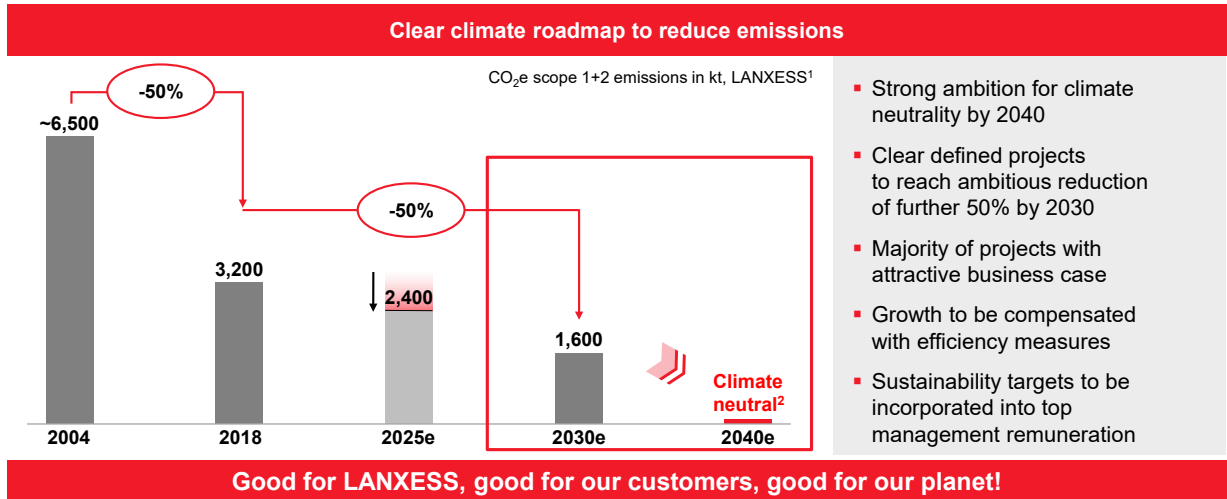
## We defined ambitious non-financial targets and are dedicated to a consequent execution

Alignment with SDG	Non-financial targets
<p><b>3</b> <b>Healthy living and well-being</b> as key issues in manufacture and use of LANXESS products (e.g. „X-health“ initiative)</p>	<p> <b>-25% Energy consumption and emissions until 2025**</b>  <b>&gt; Climate neutral until 2040</b></p> <p> Continuous reduction of incidents relating to facility &amp; process safety</p> <p> Permanently increase the proportion of evaluated suppliers</p> <p> 100% of our portfolio analyzed from a sustainability perspective</p> <p> Maintaining a high level of customer loyalty</p> <p> Innovative products based on customers' needs &amp; expectations</p> <p> At least one female member of the Board of Management by 2022</p>
<p><b>4</b> <b>LANXESS fosters qualification and training of employees and engages in the education initiatives at its sites globally</b></p>	
<p><b>6</b> <b>LANXESS produces products and technologies for water purification and regular water analyses and assessments</b></p>	
<p><b>8</b> <b>High and uniform standards &gt; Xact initiative aims to decrease the LTIFR* by &gt;50% until 2025 vs. 2015)</b></p>	
<p><b>12</b> <b>LANXESS supports pathways towards a more resource- and energy-efficient production and sustainable products</b></p>	
<p><b>13</b> <b>LANXESS is serious about climate protection &gt; LANXESS will be climate neutral until 2040</b></p>	

\* LTIFR: Lost time injury frequency rate \*\* Specific emissions, base year 2015

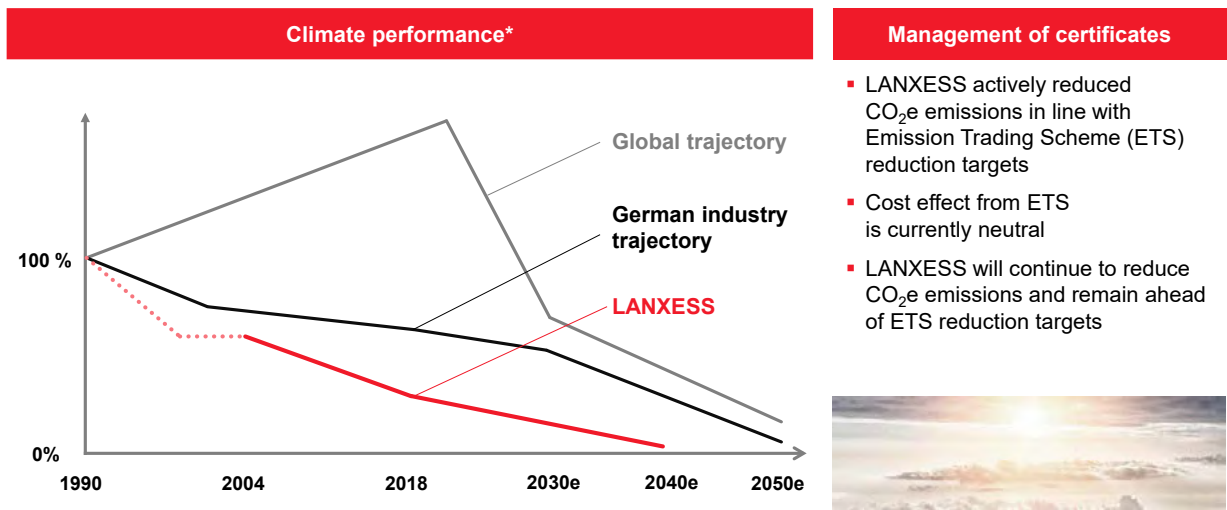


## LANXESS goes climate neutral with higher target setting and new long-term commitment



<sup>1</sup> Existing business parameters, in case of significant M&A timeline to be adjusted <sup>2</sup> <300 kt CO<sub>2</sub>e emissions p.a.

## LANXESS is ahead of regulation and far sighted in Emission Trading Scheme (ETS) certificates






\* Reduction of scope 1 and scope 2 GHG emissions. Performance calculated versus 2004 level (foundation of LANXESS); performance compared to 1990 level even higher (-65%), but not fully in our responsibility due to pre-spin-off set-up, trajectories based on BDI: „Klimapfade für Deutschland, Existing business parameters, in case of significant M&A timeline to be adjusted

## We pursue an integrated approach for sustainable production, sourcing and product portfolio

<p><b>Safe and sustainable sites</b></p> 	<p><b>Continuous reduction of incidents relating to facility &amp; process safety</b></p> <ul style="list-style-type: none"> <li>Centrally organized management system and regular audit-based reviews</li> <li>Actions based on international standards ISO 9001 and ISO 14001 for quality and environmental management</li> </ul>
<p><b>Resilient sourcing</b></p> 	<p><b>Continuously increase the proportion of evaluated suppliers</b></p> <ul style="list-style-type: none"> <li>Together for Sustainability: Joint initiative of international chemical companies for sustainable supply chains</li> <li>LANXESS Xcore – new “radar screen” for strategic buying processes in cooperation with Ecovadis as assessment partner</li> </ul>
<p><b>Sustainable product portfolio</b></p> 	<p><b>100% of our portfolio analyzed from a sustainability perspective</b></p> <ul style="list-style-type: none"> <li>Systematically evaluating the sustainability of our entire portfolio applying sustainability criteria in the development of products and applications</li> <li>Commitment to “Plastics 2030” and “Operation Clean Sweep” initiatives to prevent leakage of plastics into the environment</li> </ul>

## LANXESS’ Performance Culture creates value for our customers and drives our ideas forward

<p><b>Valuing customer relations</b></p> 	<p><b>Maintaining a high level of customer loyalty</b></p> <ul style="list-style-type: none"> <li>Close customer relationships advance product- and application-oriented innovation</li> <li>Retention index (RI or also customer loyalty index)* as central KPI to measure the intensity of the customer loyalty</li> <li>Each business unit conducts an anonymous online survey every two years</li> </ul>
<p><b>Business-driven innovation</b></p> 	<p><b>Innovative products based on customers’ needs &amp; expectations</b></p> <ul style="list-style-type: none"> <li>Electric vehicles: Thermoplastic with high mechanical strength and insulation properties for technical applications e.g. high-voltage batteries in electric vehicles</li> <li>Organic preservatives: Unique natural preservative for beverage protection</li> <li>Custom manufacturing: Development of customized ingredients for individual customers</li> </ul>
<p><b>Motivated employees and performing teams</b></p> 	<p><b>At least one female member of the Board of Management by 2022</b></p> <ul style="list-style-type: none"> <li>LANXESS’ success is driven by the personal commitment of each employee against the backdrop of a corporate culture and a clear compass of values</li> <li>Initiatives on health, safety, well-being, diversity, flexibility, and appropriate working models</li> <li>Comprehensive concepts for employee qualification and training</li> </ul>

\* Evaluation of different performance criteria, standardized on a scale of 1-100

## Corporate Governance embodied in appropriate values, guidelines and organizational structures



## LANXESS' Supervisory Board is independent, skilled, and balanced regarding its competences

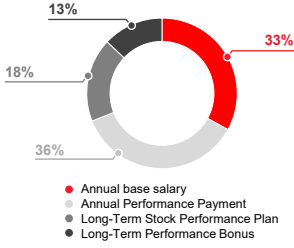
<b>Independence</b>	All members of the Supervisory Board are independent	
<b>Diversity</b>	>30% of the members of the Supervisory Board are women	
<b>Competence Profile</b>	<p>Defined competence profile ensures in-depth specialist knowledge and experience in 13 fields: chemical industry, international management, corporate governance/compliance, strategy, M&amp;A, production, marketing &amp; sale of chemical products, procurement of raw materials, energy &amp; services, HR/codetermination, investor relations, corporate financing, accounting and auditing, risk management and IT/digitalization</p> <p>The Supervisory Board fulfills currently these goals and completes the competence profile</p>	
<b>Attendance</b>	Individual disclosure of attendance at meetings every year No member of the Supervisory Board attended fewer than 80% in 2018	
<b>Tenure</b>	No more than three full terms of office (maximum of 15 years)	
<b>Age Limit</b>	Supervisory Board members shall not continue to serve after the end of the Stockholders' Meeting following their 80th birthday	

With regard to upcoming changes in law, LANXESS will consider and, if necessary, adjust aspects accordingly



## LANXESS incentivizes the Board of Management appropriately and with long-term orientation

Variable	<b>Fix</b>	<b>Annual base salary</b>	Fixed annual base salary Compensation in kind (mainly tax value of perquisites)
		<b>Annual Performance Payment (APP)</b>	Based on: Target for EBITDA pre exceptionals Cap: 200% of individual budget Deduction in case of serious safety and/or environmental problems
	<b>Long-Term orientation</b>		
		<b>Long-Term Performance Bonus (LTPB)<sup>1</sup></b>	Based on: Individual APP target for 3 successive fiscal years Set-up: 45% of fixed annual compensation (Ø APP target attainment of 100%)
	<b>Long-Term Stock Performance Plan (LTSP)<sup>2</sup></b>	Based on: LANXESS stock performance vs. MSCI World Chemicals Index <sup>2</sup> Set-up: 30% of individual target income (target attainment of 100%) Vesting period: 4 years Until 2017: Personal investment in LXS shares (5% of annual base salary) Since 2018: Share performance rights plus <b>Share Ownership Guidelines</b> (investment in LXS shares: CEO 1.5x and board members 1x of base salary)	




**Further characteristics:**

- Total compensation is **capped**
- “Claw-back” – Right to withhold or reclaim granted variable compensation

<sup>1</sup> Sustainability targets will be incorporated into top management remuneration; Further consideration: LTPB to be altered to assess target attainment in 4 consecutive fiscal years  
<sup>2</sup> LTSP 2014–2017: Dow Jones STOXX 600 Chemicals<sup>SM</sup> serves as a reference index for the LTSP 2010–2013

## LANXESS energizes sustainability in its business, in its portfolio and in its culture

Value driven culture	✓	
Sustainability is a core strategy element	✓	
Ambitious future target setting	✓	

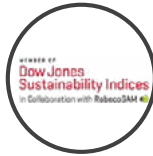
Good for our business, good for the society

## Awards in ratings and indices reflect LANXESS' commitment and its high standards

Our commitment, our effort:



Awards in ratings and indices:



Member  
DJSI World & Europe



Climascore A-



Index member



EcoVadis  
„Gold Recognition Level“

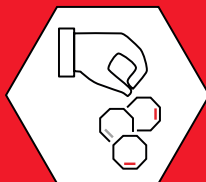
# BUSINESS

## Segments

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**Advanced  
Intermediates**



**Specialty  
Additives**



**Performance  
Chemicals**

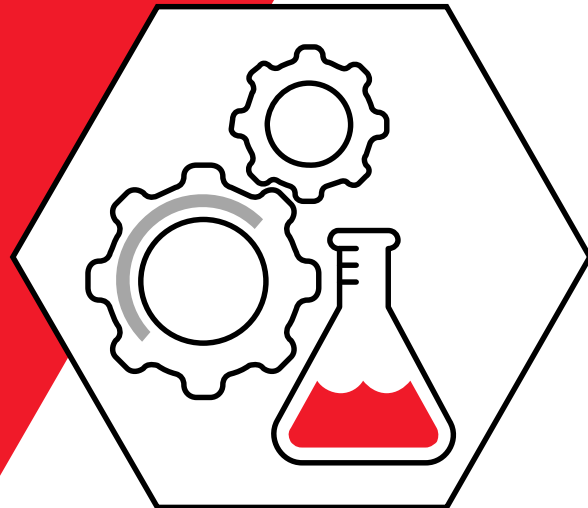


**Engineering  
Materials**



Business Segment

# Advanced Intermediates



## LANXESS is an important manufacturer of intermediates

### Advanced Industrial Intermediates

- One of the world's leading manufacturers of high-quality industrial intermediates such as benzene- and toluene-derivatives, amines, polyols, inorganics and organometallics
- Competitiveness through an integrated production network with resilient business in the agro and chemicals industries

### Saltigo

- A leading supplier in the custom synthesis market, providing state of the art technologies and services to the agrochemicals and specialty chemicals industries
- Growth driven by strong foothold in agrochemical industry



Advanced Intermediates | Specialty Additives | Performance Chemicals | Engineering Materials

029 Advanced Industrial Intermediates

033 Saltigo

## Advanced Intermediates: Financials demonstrate considerable business resilience

Contribution to Group performance 2018\*

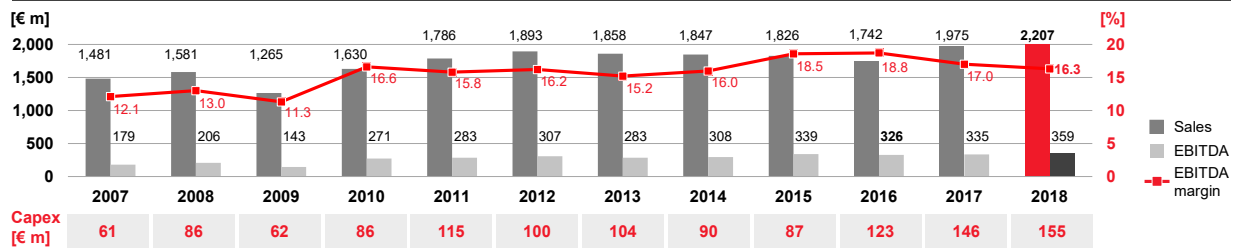
31% of Sales

35% of EBITDA

Sales by BU 2018\*



History of sales, capex and EBITDA (margin) 2007–2018



Note: All references to EBITDA are pre exceptional  
\* Operating segments

## Advanced Industrial Intermediates – One of the world’s leading suppliers of high-quality industrial chemicals

Key facts	Sales by end use 2018
<ul style="list-style-type: none"> <li>▪ <b>Segment:</b> Advanced Intermediates</li> <li>▪ <b>Sales:</b> &gt;€1,000 m</li> <li>▪ <b>Customers:</b> ~2,000</li> <li>▪ <b>Products:</b> &gt;200</li> <li>▪ <b>Production:</b> 13 sites around the world</li> <li>▪ <b>Employees:</b> ~2,500</li> <li>▪ <b>Market position:</b> Leading positions in various intermediates markets</li> <li>▪ <b>Business:</b> One of the world’s leading manufacturers of high quality industrial intermediates</li> </ul>	
	Sales by region 2018

## Advanced Industrial Intermediates: Providing chemical intermediates for a wide range of applications

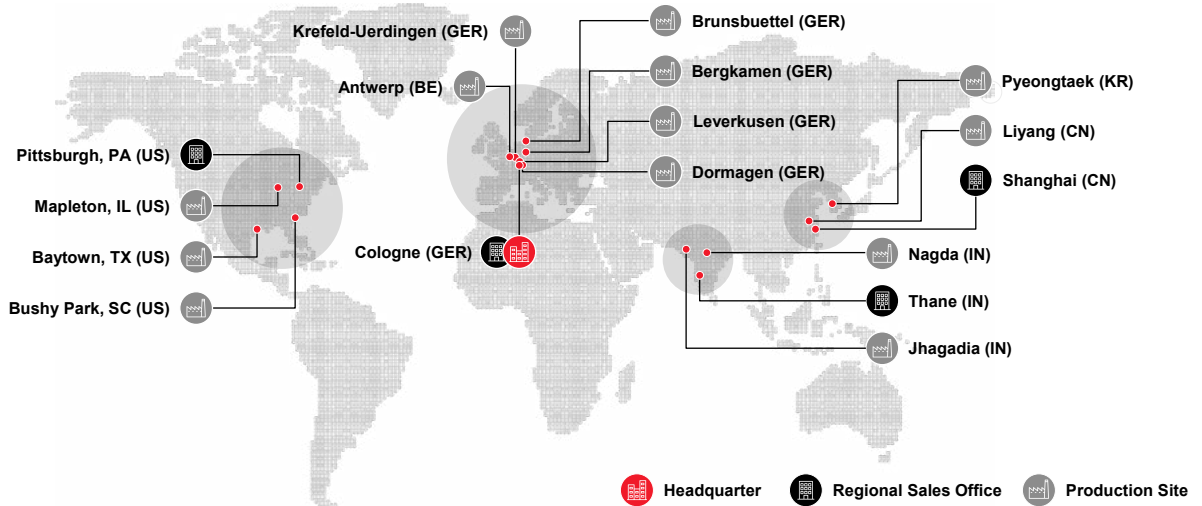
Aromatic Network	Benzyl Products & Inorganic Acid	Polyols & Oxidation Products	Antioxidants & Accelerators	Organometallics
<p><b>Main Intermediates</b></p> <ul style="list-style-type: none"> <li>▪ Chlorobenzenes</li> <li>▪ Chlorotoluenes</li> <li>▪ Cresols, d / l-Menthol</li> <li>▪ Nitrotoluenes</li> <li>▪ Toluidines</li> <li>▪ Monoisocyanates</li> </ul> <p style="text-align: center;">▼</p> <p><b>Key Applications</b></p> <ul style="list-style-type: none"> <li>▪ Agrochemicals</li> <li>▪ Flavors &amp; fragrances</li> <li>▪ High-tech plastics</li> <li>▪ Chemicals</li> </ul>	<p><b>Main Intermediates</b></p> <ul style="list-style-type: none"> <li>▪ Amines</li> <li>▪ Benzylchlorides</li> <li>▪ Benzylalcohol</li> <li>▪ Benzaldehyde</li> <li>▪ Hydrofluoric acid</li> <li>▪ Hydrazine hydrate</li> </ul> <p style="text-align: center;">▼</p> <p><b>Key Applications</b></p> <ul style="list-style-type: none"> <li>▪ Agrochemicals</li> <li>▪ Advanced polymers</li> <li>▪ Solvents</li> <li>▪ Flavors &amp; fragrances</li> <li>▪ Batteries</li> </ul>	<p><b>Main Intermediates</b></p> <ul style="list-style-type: none"> <li>▪ Hexanediol</li> <li>▪ Trimethylolpropane</li> <li>▪ Adipic acid</li> <li>▪ Maleic anhydride</li> <li>▪ Phthalic anhydride</li> <li>▪ Calcium formate</li> </ul> <p style="text-align: center;">▼</p> <p><b>Key Applications</b></p> <ul style="list-style-type: none"> <li>▪ Polyester resins</li> <li>▪ Coatings</li> <li>▪ Plasticizers</li> <li>▪ Building material additives</li> </ul>	<p><b>Main Intermediates</b></p> <ul style="list-style-type: none"> <li>▪ Phenylendiamines</li> <li>▪ Quinolines</li> <li>▪ Thiazoles</li> <li>▪ Sulfenamides</li> <li>▪ Mercaptobenzimidazoles</li> <li>▪ Peptizer</li> </ul> <p style="text-align: center;">▼</p> <p><b>Key Applications</b></p> <ul style="list-style-type: none"> <li>▪ Tires</li> <li>▪ Technical rubber goods</li> <li>▪ Consumer goods</li> <li>▪ Fuel additives</li> </ul>	<p><b>Main Intermediates</b></p> <ul style="list-style-type: none"> <li>▪ Aluminiumalkyl</li> <li>▪ Co-Catalyst components</li> <li>▪ Aluminoxane Activators</li> <li>▪ Silane Stereomodifiers</li> <li>▪ Dialkyl Zinc&amp;Magnesium</li> <li>▪ Butyl &amp; Octyltin products</li> <li>▪ High purity precursors</li> </ul> <p style="text-align: center;">▼</p> <p><b>Key Applications</b></p> <ul style="list-style-type: none"> <li>▪ Polyolefins, elastomers, Linear alpha olefins</li> <li>▪ Glass coating</li> <li>▪ Electronics (LED &amp; PV)</li> <li>▪ Fine Chemicals</li> </ul>

Advanced Intermediates | Specialty Additives | Performance Chemicals | Engineering Materials

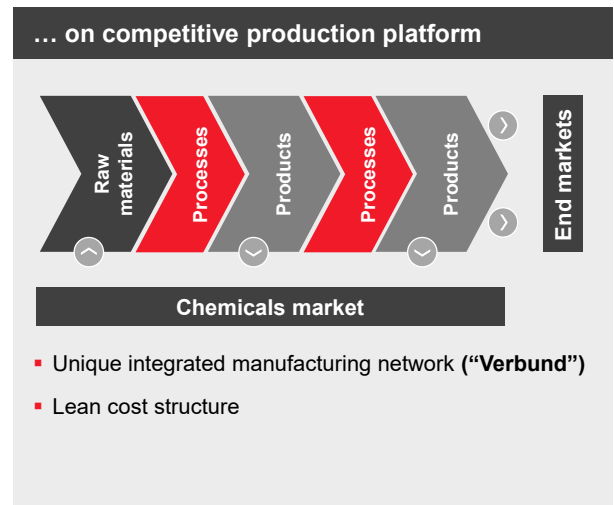
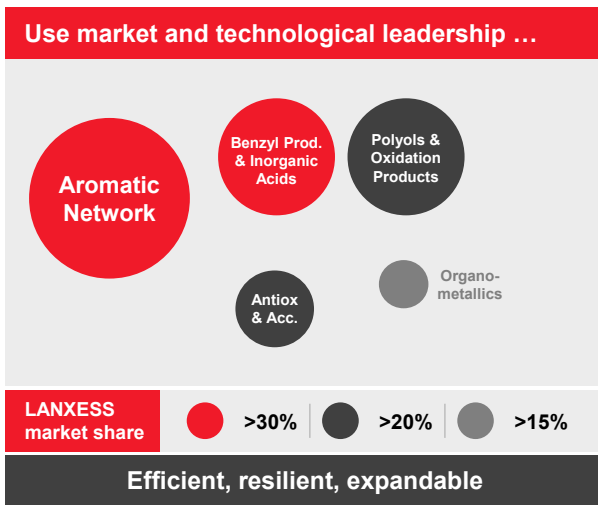
029 Advanced Industrial Intermediates

033 Saltigo

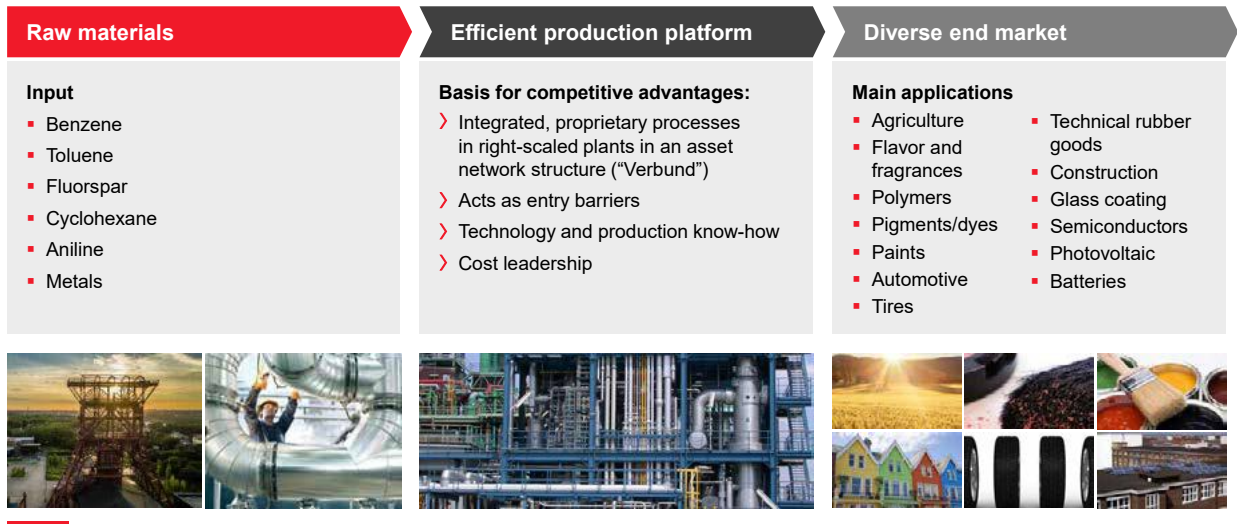
## A global reach with sites in China, Germany, India and USA to serve worldwide demand



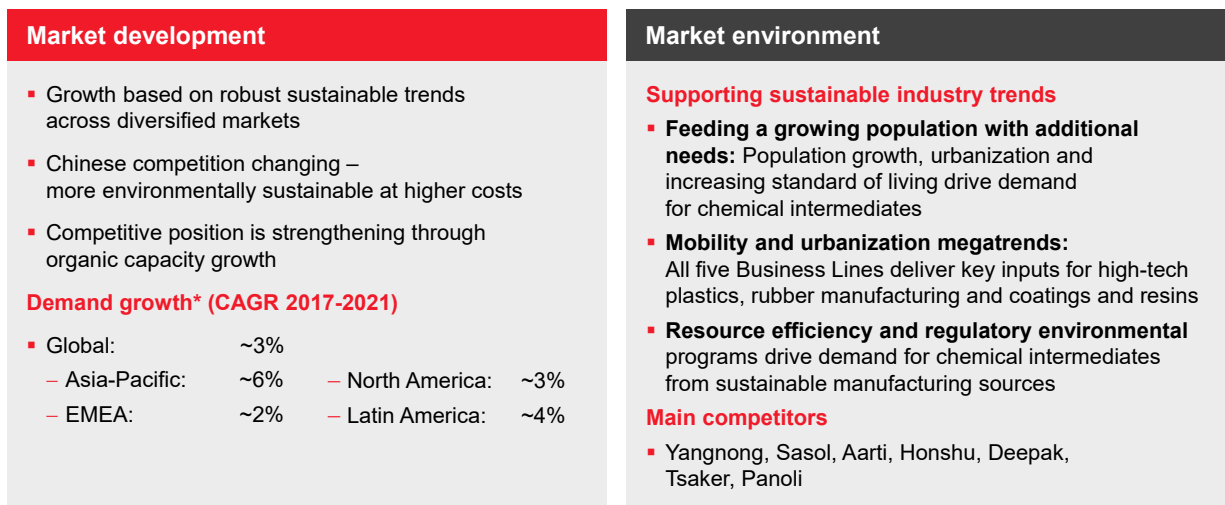
## Advanced Industrial Intermediates: Most competitive value chain



## Competitive advantage based on efficient production platform with integrated processes



## Global industry-trends drive the growth of LANXESS’ high-quality intermediates



Source: Global Insight and LMC automotive; BU All specific end use



## Advanced Industrial Intermediates – Well positioned to generate value in the global marketplace

<b>Leadership positions</b>	One of the leading suppliers of Advanced Industrial Intermediates worldwide and leadership in Europe
<b>Most competitive network</b>	Competitive technologies and world-scale production facilities operating at lowest cost due to most efficient “Verbund”-operations
<b>Agile development</b>	Leading competence in managing a complex production network improving costs continuously

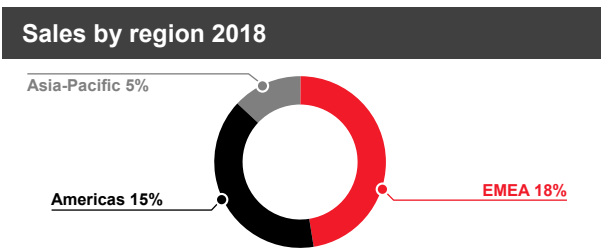
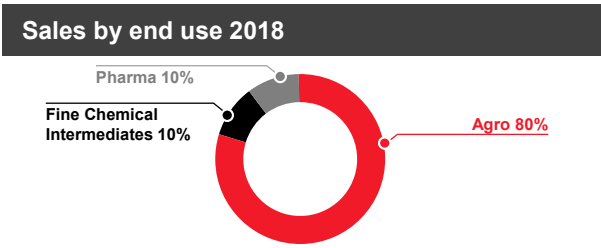


## Saltigo – A leading custom manufacturing organization for the agro and fine chemicals market

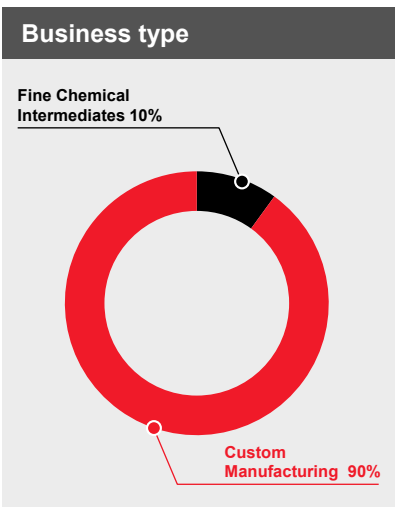
**Key facts**

- **Segment:** Advanced Intermediates
- **Sales:** <€500 m
- **Customers:** Batch processes up to 5,000 t for ~150 customers\*
- **Products:** >400
- **Production:** Unique production network with 10 plants in Dormagen & Leverkusen (GER)
- **Research:** World-class R&D center
- **Employees:** ~1,200
- **Market position:** One of the global leaders in agro custom manufacturing
- **Business:** Exclusive synthesis for active ingredients notably for the agro industry and specialty chemicals like Saltidin® (insect repellent)

\*1 product = 1 customer for ~5 years



## Saltigo – Top brand in the industry, unique capabilities open new opportunities



**Custom Manufacturing**

- Exclusive synthesis: 1 product = 1 customer
- High-value products
- Technology leadership in complex multi-step syntheses at almost any scale (1t/a up to 5,000t/a)
- World-class R&D center in Leverkusen to develop most efficient chemical processes

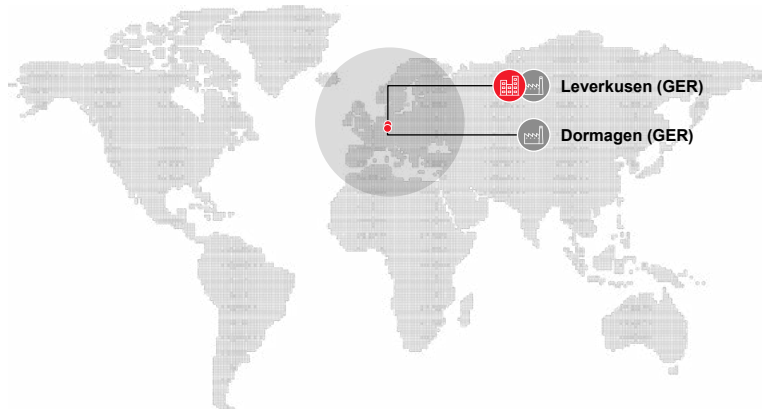
**Fine Chemical Intermediates**

- Special building blocks & products serving a variety of chemical industries, customers and applications

## Saltigo has a unique, fully integrated production network in Germany

### Key features

- All sites embedded in state of the art chemical parks
  - Utilities, waste water treatment, incineration
  - Synergies with LANXESS plants
- Unique, fully integrated production network
  - Multipurpose & technology specific plants
  - Very broad permits & chemistries
  - Process development & analytics on site



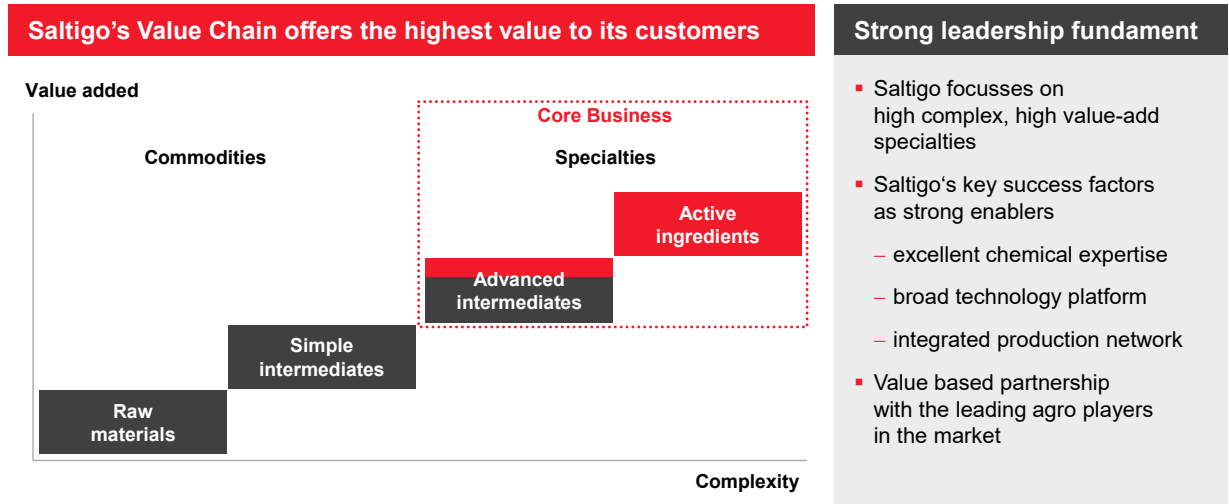
Headquarter Production Site

## Broad range of applications, focussing on fungicides

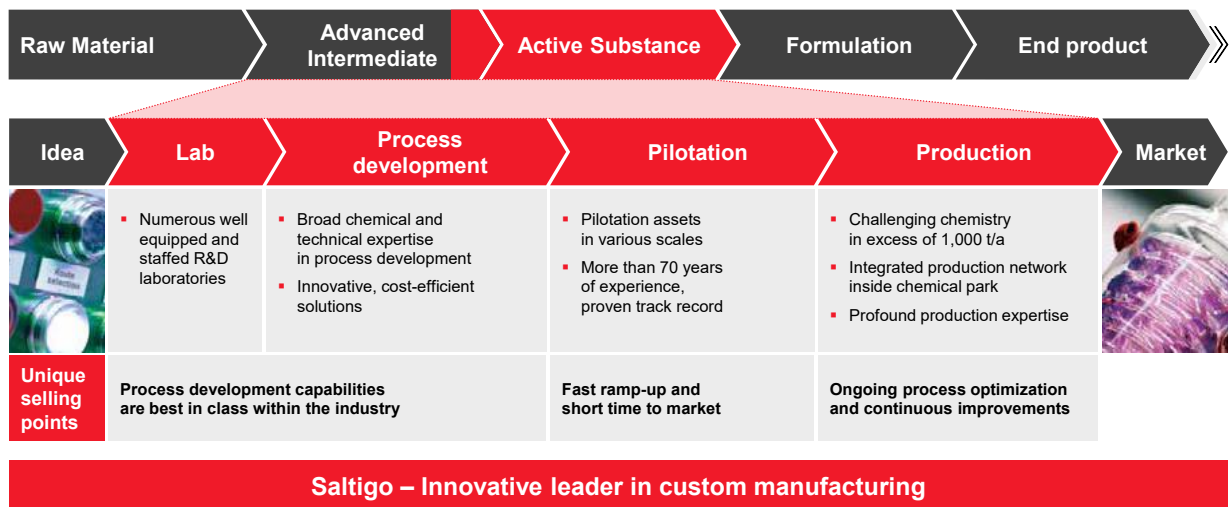
### Project business & chemicals for various purposes

Agrochemicals		Non-Life Science Fine Chemicals		Pharmaceuticals & Animal Health	
Insecticides	Fungicides	Repellents	Personal Care	Heart Disease	Renal Care
Herbicides	Nematicides	Performance Chemicals	Polymers	Anti-Thrombosis	Anti-Mycotics



## Saltigo is the partner of choice for high complex specialties



## Saltigo with thorough service offerings, covering crucial parts of the product value chain



## Saltigo’s broad technology base and its integrated production platform are key assets

	<p><b>Sophisticated chemicals</b> ✓</p> <p><b>Very broad permits, allowing (almost) all kinds of chemistries/reagents, including</b></p> <ul style="list-style-type: none"> <li>▪ Phosgene</li> <li>▪ Hydrazine</li> <li>▪ Ethylene oxide</li> <li>▪ Bromine</li> <li>▪ Hydrofluoric acid and hexa fluorinations</li> </ul>	<p><b>Chemical park integration</b> ✓</p> <ul style="list-style-type: none"> <li>▪ All plants in fully integrated chemical parks</li> <li>▪ Broad recycling capabilities and capacities</li> <li>▪ Chemical park with waste water treatment, incineration plants and landfill on site</li> </ul>	
	<p><b>Flexible technology base</b> ✓</p> <ul style="list-style-type: none"> <li>▪ 10 plants – multipurpose, cGMP* or dedicated technologies, e.g. hydrogenations</li> <li>▪ Versatile technology base with a broad equipment and material mix</li> <li>▪ Complex syntheses in various scales</li> </ul>	<p><b>Health, environment &amp; safety</b> ✓</p> <ul style="list-style-type: none"> <li>▪ ISO 9001:2008, ISO 14001, ISO 50001 and OHSAS certified</li> <li>▪ cGMP* certified</li> <li>▪ Very high quality and safety standards</li> <li>▪ MAQ &lt;2 for many years</li> </ul>	

\* cGMP = current Good Manufacturing Practice

## Clear focus on specialties and global industry trends foster sustainable growth

<p><b>Saltigo is well positioned in a sound market</b></p> <ul style="list-style-type: none"> <li>▪ Sustainably growing demand for high specialty agro chemicals</li> <li>▪ Increasing focus on environmental sustainability in China putting pressure on Saltigo’s competitors landscape</li> <li>▪ Competitive position is strengthening through capacity growth</li> <li>▪ Saltigo’s sound crop protection portfolio, with high focus on fungicides offering highest returns</li> </ul>	<p><b>Market environment: Sustainable industry trends</b></p> <ul style="list-style-type: none"> <li>▪ <b>Population growth</b> and increasing meat consumption as main drivers for higher crop demand</li> <li>▪ <b>Urbanization</b> – Mega cities are reducing arable land, thus requiring more efficient agrochemicals</li> <li>▪ <b>Globalization</b> of travel contributes to spreading of insects</li> <li>▪ <b>Outsourcing</b> is a vital trend in the life-science industry, also fueled by <b>mergers</b> of major agro companies</li> </ul> <p><b>Main competitors</b></p> <ul style="list-style-type: none"> <li>▪ Deccan</li> <li>▪ Lianhe</li> <li>▪ CABB</li> </ul>
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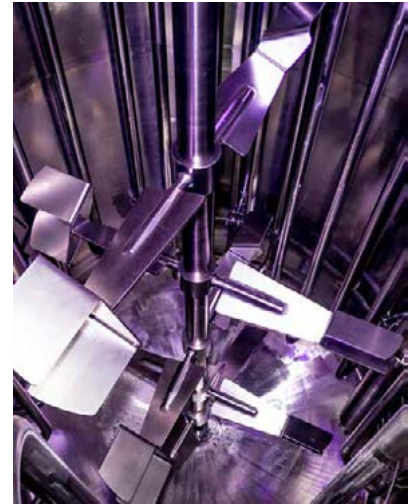
Advanced Intermediates | Specialty Additives | Performance Chemicals | Engineering Materials

029 Advanced Industrial Intermediates

033 Saltigo

## Saltigo – Market leader with strong business set-up and sustainably growing end markets

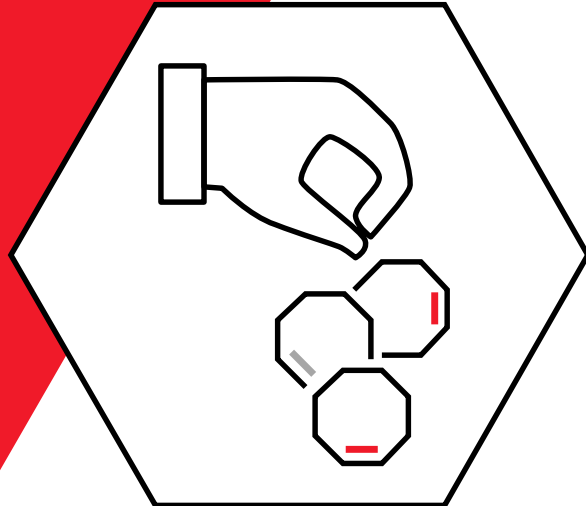
<b>European leadership</b>	#1 custom-manufacturer for agro specialties in Europe and a leading player globally
<b>Specialized portfolio</b>	Leading chemical and technical expertise for sophisticated ingredient manufacturing
<b>Flexible technology</b>	Unique fully integrated production network
<b>Sustainable growth</b>	Focus on chemical specialties in the agro and niche industries
<b>Setting standards</b>	Highest reliability and quality, safety and environmental standards in the synthesis of active ingredients








Business Segment

# Specialty Additives



## Specialty Additives: World class player in several highly attractive additives niches

Polymer Additives	Lubricant Additives	Rhein Chemie
		
<ul style="list-style-type: none"> <li>▪ Polymer Additives offers a broad portfolio of brominated as well as phosphorus flame retardants, plasticizers and other products</li> </ul>	<ul style="list-style-type: none"> <li>▪ Leading lubricants additives player with strong industrial focus and highly specialized and balanced portfolio to serve growing end markets</li> </ul>	<ul style="list-style-type: none"> <li>▪ Solution provider for additives in rubber, plastics, construction and colorants applications</li> </ul>

**040** Lubricant Additives

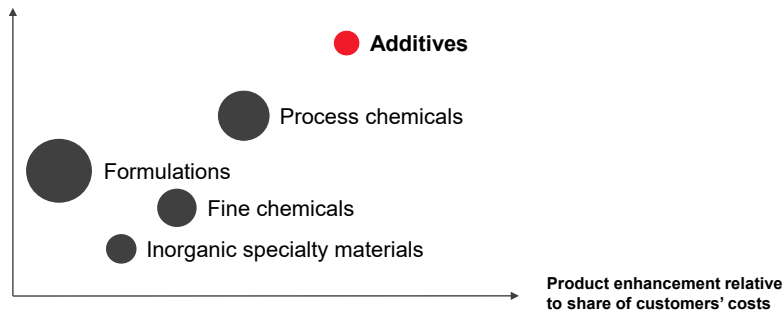
**045** Polymer Additives

**050** Rhein Chemie

## Additives are one of the most attractive market segments in the chemical space

### Additives are high value added high service products

Demand for technical service



### Attractive characteristics of additives business

- Small part of customers' total costs
- Desired result is key for customer
- Knowledge and technical service intensive

### Increasing performance requirements drive growth above GDP



## Specialty Additives offers a higher than average profitability

### Contribution to Group performance 2018\*

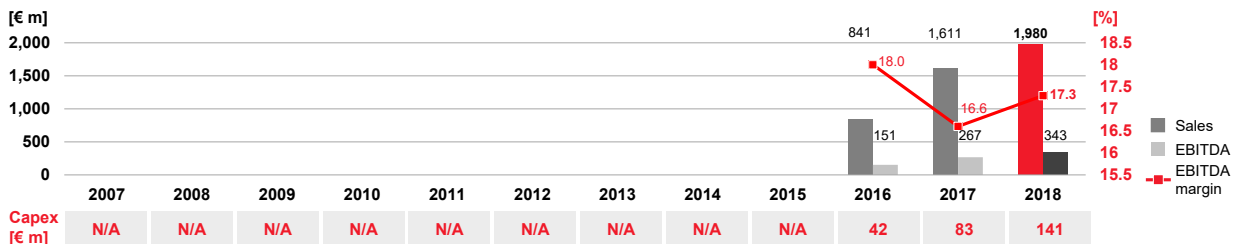
**28% of Sales**

**34% of EBITDA**

### Sales by BU 2018\*



### History of sales, capex and EBITDA (margin) 2007–2018



Note: All references to EBITDA are pre exceptional; pro forma restatements with new BU structure in 2016; as of 21 April 2017 Chemtura's additives business was consolidated  
\* Operating segments



**040** Lubricant Additives

**045** Polymer Additives

**050** Rhein Chemie

## Lubricant Additives is a major global player in the attractive field of lubricants

Overview		Sales by end use 2018											
<ul style="list-style-type: none"> <li><b>Segment:</b> Specialty Additives</li> <li><b>Sales:</b> €500–€1,000 m</li> <li><b>Customers:</b> ~800 in more than 120 countries</li> <li><b>Products:</b> ~660</li> <li><b>Production:</b> 12 sites</li> <li><b>Research:</b> 5 technical competence centers in North America, Europe and Asia</li> <li><b>Employees:</b> ~800</li> <li><b>Market position:</b> Among top 3 lubricant additives companies</li> <li><b>Business:</b> Leading lubricants additives player with strong industrial focus and highly specialized and balanced portfolio to serve growing end markets</li> </ul>	<table border="1"> <caption>Sales by end use 2018</caption> <tr><th>End Use</th><th>Percentage</th></tr> <tr><td>Ind. Manufacturing</td><td>52%</td></tr> <tr><td>Automotive</td><td>19%</td></tr> <tr><td>Energy</td><td>13%</td></tr> <tr><td>Aviation</td><td>10%</td></tr> <tr><td>Others</td><td>6%</td></tr> </table>	End Use	Percentage	Ind. Manufacturing	52%	Automotive	19%	Energy	13%	Aviation	10%	Others	6%
End Use	Percentage												
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	<table border="1"> <caption>Sales by region 2018</caption> <tr><th>Region</th><th>Percentage</th></tr> <tr><td>Americas</td><td>53%</td></tr> <tr><td>EMEA</td><td>32%</td></tr> <tr><td>Asia-Pacific</td><td>15%</td></tr> </table>	Region	Percentage	Americas	53%	EMEA	32%	Asia-Pacific	15%				
Region	Percentage												
Americas	53%												
EMEA	32%												
Asia-Pacific	15%												

## Lubricant Additives with strong focus on high value-add industrial lubricant solutions

Well diversified and specialized lubricants portfolio	A leading specialties player						
<p>Sales of Business Unit Lubricant Additives (illustrative)</p> <table border="1"> <caption>Sales of Business Unit Lubricant Additives (illustrative)</caption> <tr><th>Category</th><th>Percentage</th></tr> <tr><td>Specialties</td><td>~80%</td></tr> <tr><td>Commodities</td><td>~20%</td></tr> </table>	Category	Percentage	Specialties	~80%	Commodities	~20%	<ul style="list-style-type: none"> <li>Highly diversified end-market split with focus on industrial lubricants</li> <li>Strong expertise in high value-add specialty lubricants</li> <li>Leading positions in mid-sized and niche markets</li> <li>Automotive exposure well balanced with additives and base stocks only for high grade specialty engine oils (highest category 4 &amp; 5)</li> </ul>
Category	Percentage						
Specialties	~80%						
Commodities	~20%						

## Lubricant Additives Business – Cutting edge integrated portfolio for lubricants

Top line with comprehensive offering	Unique business set-up
<div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>Synthetic esters</p> <p>Phosphate esters</p>   <p>Fire-resistant hydraulic fluids</p> <p>Refrigeration fluids</p> <p>Aerospace fluids</p> <p>High performance greases</p> </div> <div style="flex: 1; text-align: center;"> <p>The diagram is a circular flow chart. It is divided into three segments: 'Basestocks' (top, blue), 'Additives' (right, grey), and 'Finished Fluids' (bottom, red). Each segment contains a small image representing that stage: a factory for basestocks, a laboratory for additives, and a finished product for fluids.</p> </div> <div style="flex: 1;"> <p>Antioxidants</p> <p>Detergents</p> <p>Extreme-pressure</p> <p>Anti-wear</p> <p>Corrosion inhibitor</p> <p>Water-miscible</p> <p>Specialties</p> <p>Packages</p> </div> </div>	<ul style="list-style-type: none"> <li>▪ Unique integrated value chain with backward integration</li> <li>▪ Strong complementary product portfolio with cross-selling potential</li> <li>▪ Improved regional sales split offering additional potential for growth</li> <li>▪ Striving for innovation and technology leadership across the entire portfolio</li> </ul>
<p><b>Lubricants Additives Business offers an integrated and specialized portfolio for lubricants</b></p>	

## Lubricant Additives – Extensive sector coverage

### Key industries served

	Aerospace	
	Marine	
	Automotive	
	Power Generation	
	General Industrial	
	Off-Highway	
	Refrigeration	

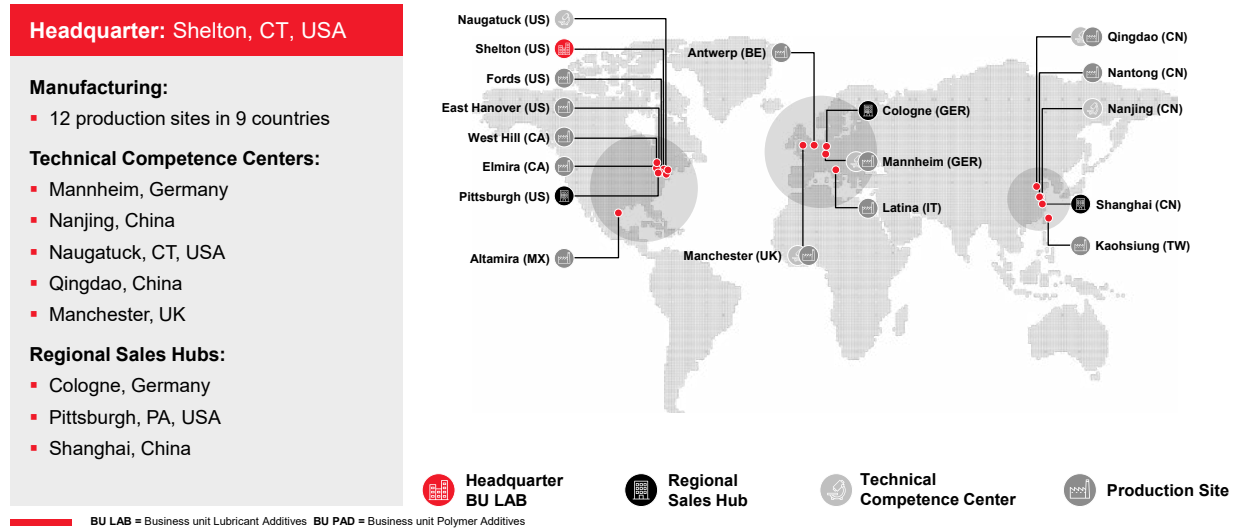
Advanced Intermediates | **Specialty Additives** | Performance Chemicals | Engineering Materials

**040** Lubricant Additives

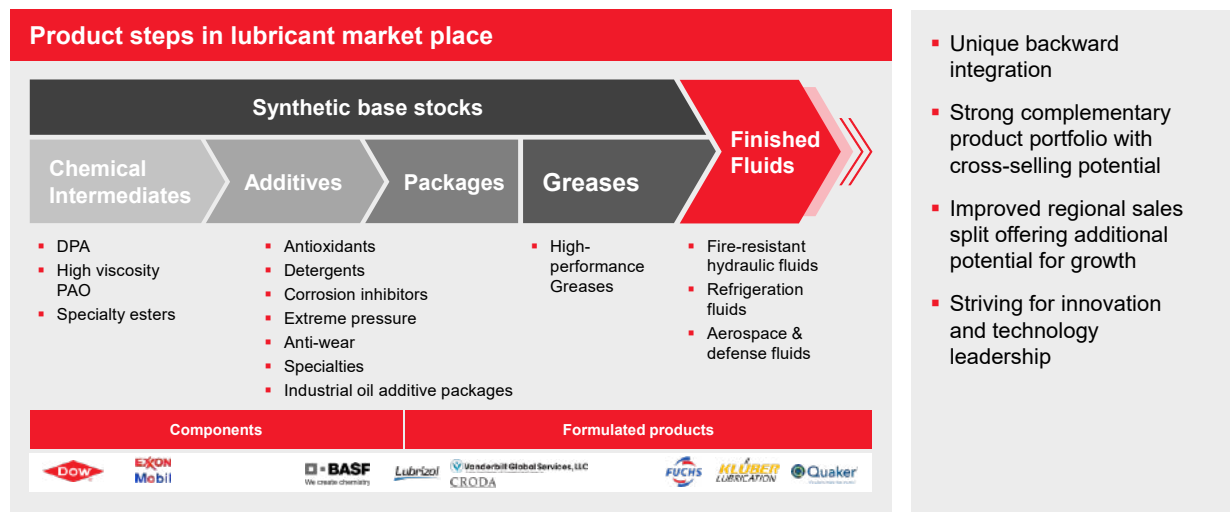
**045** Polymer Additives

**050** Rhein Chemie

## Lubricant Additives – A truly global player with close customer proximity



## Lubricant Additives – Unique integrated value chain from basestocks to lubricant additives, packages and finished fluids



040 Lubricant Additives

045 Polymer Additives

050 Rhein Chemie

## High-quality Additives and Lubricants designed for environmental awareness and regulation

<p><b>Wind turbines</b></p> <ul style="list-style-type: none"> <li>Synton® high-viscosity polyalphaolefins (PAO) are used in gear oils for wind turbines, and in industrial and automotive applications             <ul style="list-style-type: none"> <li>Green energy</li> <li>Longer product life</li> <li>Reduced maintenance costs</li> </ul> </li> </ul>	<p><b>Transportation</b></p> <ul style="list-style-type: none"> <li>Naugalube® antioxidants enable longer lasting engine oil performance, maintaining engine life and efficiency</li> <li>Royco® aviation lubricants are produced to the highest standards and specification to ensure optimum in flight performance, safety and efficiency</li> </ul>	<p><b>Detergents</b></p> <ul style="list-style-type: none"> <li>Lobase® and Hybase® detergents provide excellent detergency, low reactivity, corrosion protection and EP performance             <ul style="list-style-type: none"> <li>Enables lubricants to protect marine engines operating on varying quality fuels</li> <li>Magnesium sulfonate detergents help to reduce 'Low Speed Pre-Ignition' in passenger car engines</li> </ul> </li> </ul>
<p><b>Emissions and fuel economy</b></p> <ul style="list-style-type: none"> <li>Additin® new organic metal-free friction modifier additive delivers significant friction reduction to improve engine fuel economy and reduce emissions</li> <li>Hatcol® high performance synthetic esters help to reduce viscosity and internal friction in the engine resulting in higher fuel efficiency</li> </ul>	<p><b>Industrial solutions</b></p> <ul style="list-style-type: none"> <li>Additin® sulfur-based extreme pressure additives for metal working fluids help to replace chlorinated paraffins</li> <li>Reolube® Turbofluid 46B low toxicity, fire resistant hydraulic fluids for power plants designed to provide a safer alternative and comply with REACH regulations</li> </ul>	<p><b>Greener cooling solutions</b></p> <ul style="list-style-type: none"> <li>Everest® refrigeration lubricants designed to optimize performance, energy efficiency and service life of today's low global warming potential (GWP) air conditioning systems</li> <li>Hatcol® esters are a key base stock of refrigerant lubricants for these AC systems</li> </ul>

## Lubricant Additives growth is driven by energy efficiency and tighter regulations in higher growth segments

<p><b>Market drivers</b></p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="225 1469 405 1675"> <p><b>Basestock Demand*</b> (CAGR 2017–2022)</p> </div> <div data-bbox="469 1469 649 1675"> <p><b>Additive Demand*</b> (CAGR 2017–2022)</p> </div> <div data-bbox="713 1469 893 1675"> <p><b>Fin. Fluid Demand*</b> (CAGR 2017–2022)</p> </div> </div> <ul style="list-style-type: none"> <li>New auto and industrial OEM specifications require energy efficient, long lasting performance (synthetics, antioxidants)</li> <li>Environmental regulations lead to safer alternatives; e.g. ban of chlorinated paraffins in MWFs raise demand for Extreme Pressure (sulfur carriers)</li> <li>Aviation and refrigeration finished fluids show strong growth correlating with increasing urbanization and standards of living</li> </ul>	<p><b>Market environment</b></p> <div style="display: flex; justify-content: space-between;"> <div data-bbox="927 1469 1171 1653"> <p><b>Shift to synthetics</b></p> <ul style="list-style-type: none"> <li>Percentage of lubricants based on synthetic basestocks (e.g. PAOs, esters) has increased from 10% in 2009 to 21% in 2018*</li> </ul> </div> <div data-bbox="1219 1469 1399 1675"> <p><b>Synthetics Share of Global Lubricants*</b></p> </div> </div> <p><b>Main competitors</b></p> <ul style="list-style-type: none"> <li>CRODA (basestocks)</li> <li>Lubrizol, Afton, King Industries (additives)</li> <li>Lubrizol, Afton (packages)</li> <li>CPI, Chemtool (finished fluids)</li> </ul>
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\* Source: Kline Group

## Leading technology player with unique integrated value chain and focus on specialties

<b>Unique value chain</b>	Unique fully integrated value chain with backward integration into basestocks
<b>Leading Technology</b>	Technology, Innovation and Safety Expertise in critical industries bring solution to meet complex technical challenges
<b>Focus on specialties</b>	Highly-specialised additives that benefit from regulatory trend towards high performance additives solutions
<b>Attractive Growth</b>	Clear trends towards higher regulation and better product performance drives growth for specialties



Advanced Intermediates | Specialty Additives | Performance Chemicals | Engineering Materials

040 Lubricant Additives

045 Polymer Additives

050 Rhein Chemie

## Polymer Additives is a major global player in end markets

<b>Overview</b>	<b>Sales by end use 2018</b>
<ul style="list-style-type: none"> <li>▪ <b>Segment:</b> Specialty Additives</li> <li>▪ <b>Sales:</b> €500–€1,000 m</li> <li>▪ <b>Customers:</b> ~1,200 in more than 120 countries</li> <li>▪ <b>Products:</b> ~350</li> <li>▪ <b>Production:</b> 8 sites in 4 countries</li> <li>▪ <b>Research:</b> 6 technical competence center in North America, Europe and Asia</li> <li>▪ <b>Employees:</b> ~900</li> <li>▪ <b>Market position:</b> Among top 1–3 additives companies</li> <li>▪ <b>Business:</b> Polymer Additives offers a broad portfolio of brominated as well as phosphorus flame retardants, plasticizers and other products</li> </ul>	
	<b>Sales by region 2018</b>

## Four business lines with a strong complementary portfolio and a strategic focus on specialties

Brominated Flame retardants	Bromine Performance Products	Plastics Additives	Specialties and Intermediates
<ul style="list-style-type: none"> <li>▪ Brominated flame retardants</li> </ul>	<ul style="list-style-type: none"> <li>▪ Bromine</li> <li>▪ Fine Chemicals and intermediates</li> <li>▪ Clear Brine Fluids</li> </ul>	<ul style="list-style-type: none"> <li>▪ Phosphorus flame retardants</li> <li>▪ Plasticizers</li> <li>▪ Hydrolysis protection</li> <li>▪ Other plastic additives</li> </ul>	<ul style="list-style-type: none"> <li>▪ Phosphorus chemicals</li> <li>▪ Water treatment products</li> <li>▪ Other intermediates and specialties</li> </ul>
Firemaster®, Emerald Innovation®	Geobrom®, Meth-O-Gas®	Mesamoll®, Adimoll®, Ultramoll®, Mersolat®, Disflamoll®, Levagard®, Stabaxol®, Reofos®	Bayhibit®, Baypure®, Baysolvex®, Mersolat®
End markets	End markets	End markets	End markets
<ul style="list-style-type: none"> <li>▪ Electronics</li> <li>▪ Insulations for the building industry</li> <li>▪ Textiles</li> </ul>	<ul style="list-style-type: none"> <li>▪ Chemical and pharmaceuticals</li> <li>▪ Oil and Gas</li> </ul>	<ul style="list-style-type: none"> <li>▪ Construction</li> <li>▪ Automotive</li> <li>▪ General plastics</li> </ul>	<ul style="list-style-type: none"> <li>▪ Agro chemicals</li> <li>▪ Water treatment</li> </ul>

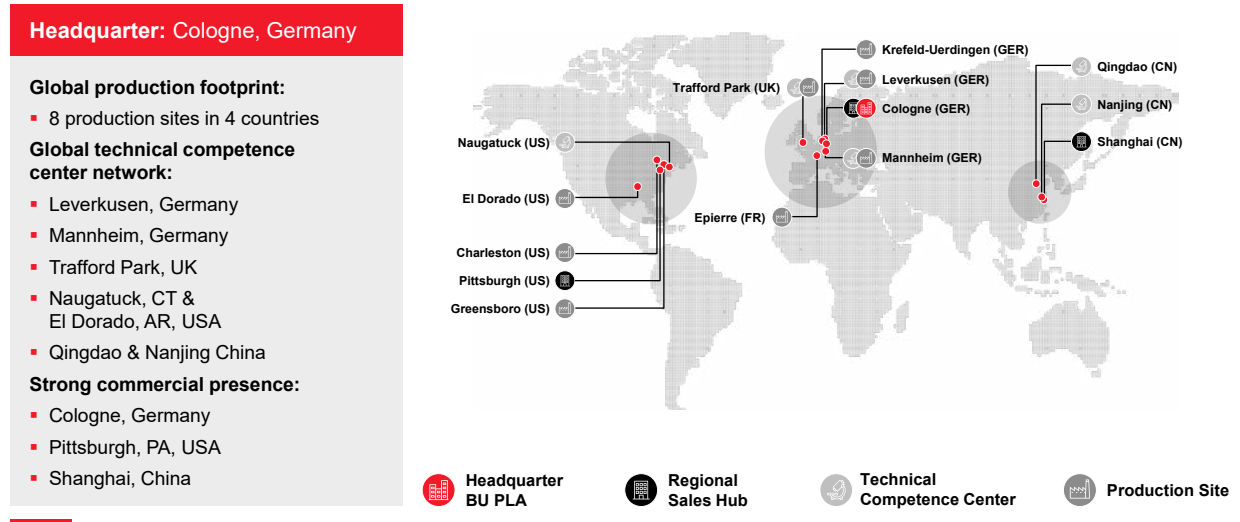
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## Polymer Additives – A truly global player with close customer proximity



## Polymer additives provides indispensable solutions for modern life

Flame retardants	Safe for toys and food contact	Giving plastics longer life
<ul style="list-style-type: none"> <li>Fire safety requirements: 1) Prevent fire 2) Generate as little smoke as possible and delay the fire from spreading</li> </ul>	<ul style="list-style-type: none"> <li>Plasticizer solutions that are safe in human contact or food</li> </ul>	<ul style="list-style-type: none"> <li>Products made from plastics and polyurethane wear extremely fast on contact with water or acids</li> </ul>
<p>&gt; LANXESS products offer highly-efficient fire protection paired with other advantages like easy processability or high elasticity</p>	<p>&gt; We offer plasticizing solutions for a broad range of specialty applications, e.g.:</p> <ul style="list-style-type: none"> <li>– Toys</li> <li>– Products in contact with aqueous based foodstuffs</li> <li>– Human contact, e.g. gloves, swimming floats, film for water beds</li> <li>– Sealants and casting compounds for the construction sector</li> </ul>	<p>&gt; LANXESS' stabilizers extend the lifespan of products by up to three fold. Only this prolonged service life allows the use of these materials in critical applications</p>
<p><b>Disflamoll®</b>, <b>Reofos®</b>, <b>Levagard®</b>, <b>Firemaster®</b>, <b>Emerald Innovation®</b></p>	<p><b>Mesamoll® II</b> is suitable for a large number of demanding applications</p>	<p><b>Stabaxo®</b> works effectively against hydrolysis in a wide range of polymers</p>

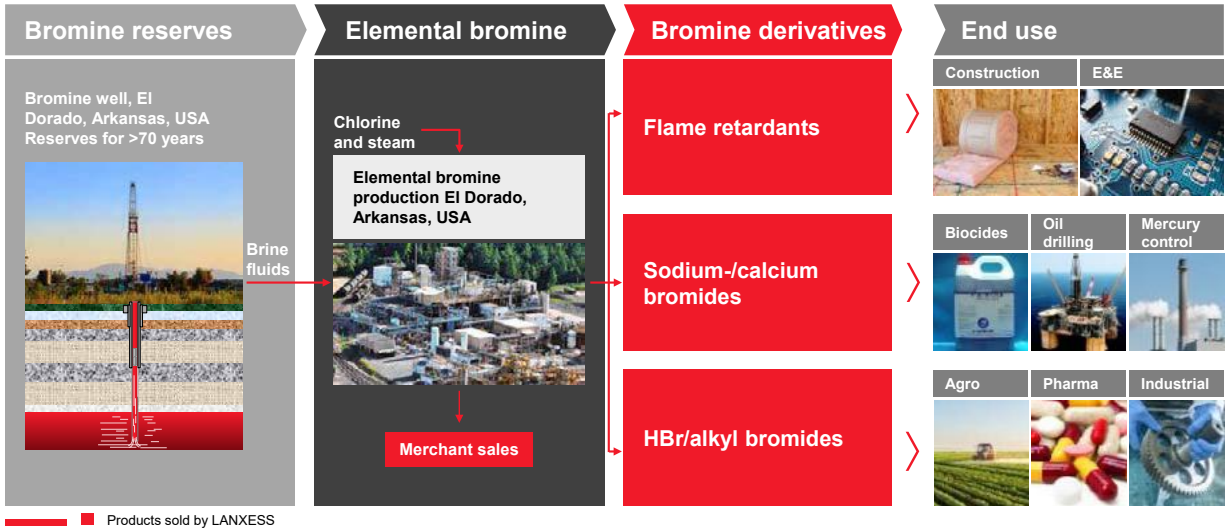
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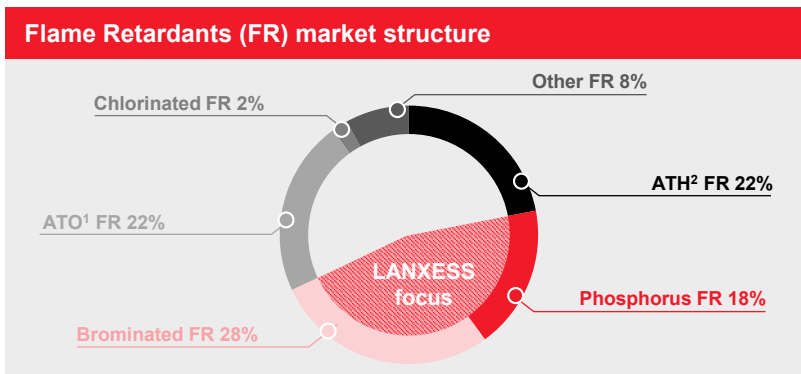
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## Bromine derivatives – Extracting value from bromine by pursuing the whole value chain

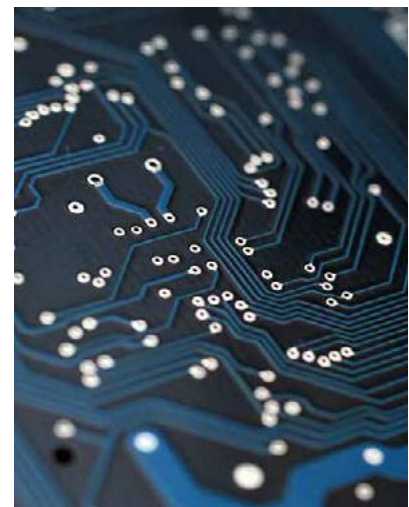


## Polymer Additives offers a broad and specialized portfolio of complementary phosphorous and brominated flame retardants



- Brominated and phosphorous Flame Retardants represent 46% of total market
- ATO<sup>1</sup> ATH<sup>2</sup>, and chlorinated FR are either under increasing regulatory scrutiny or lack attractive market conditions

<sup>1</sup> Antimony trioxide <sup>2</sup> Aluminium trihydroxide <sup>3</sup> Other FR include nitrogen-based, silicon-based, magnesium-based FR, borates, graphite and others – Chemistries that are not available in our current asset production setup.  
Source: Frost & Sullivan, Global Flame Retardants Market, July 2019



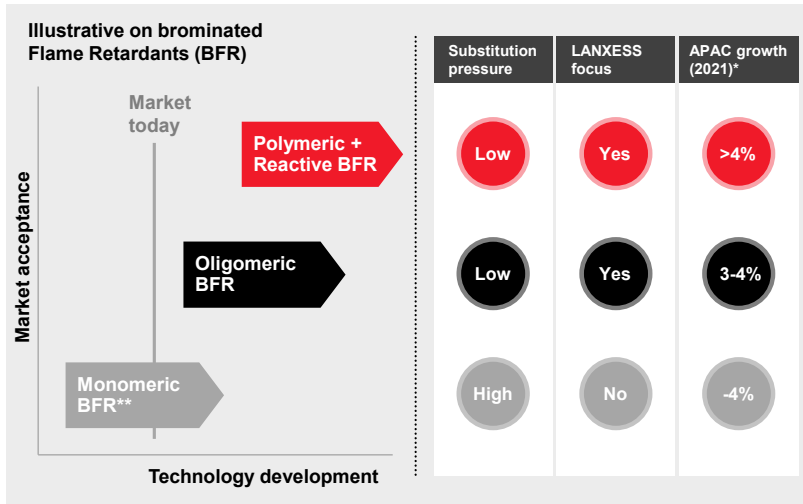


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## Polymer Additives well prepared for upcoming regulatory changes in APAC: Strategic focus on developing sustainable FRs



\*Source: IHS SCUP 2017 Flame retardants; \*\* e.g HBCD Flame Retardant for polystyrene insulation

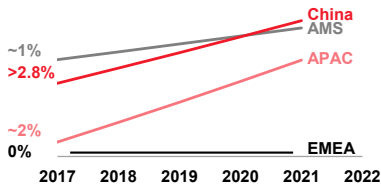
### LANXESS: Ideal portfolio set-up

- Increased sensitivity regarding toxicity and persistence (bioavailability)
  - Tightening regulations impacting choice of FR technology
  - Current regulations focusing on small-molecule compounds due to higher leaching risks
  - Market gradually moving to longer chain and polymeric and reactive compounds
- > LANXESS focusses on polymeric and reactive Flame Retardants to reduce toxicity and leaching risk

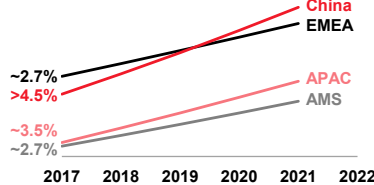
## Polymer Additives growth is driven by enforcement of regulations and market growth in APAC

### Market development

Bromine derivatives demand growth\* (CAGR 2017–2022)



Flame retardant demand growth\* (CAGR 2017–2022)



- Increased bromine logistical capabilities and new product developments will drive growth over the coming years
- Sustainable flame retardants favored by regulatory trends:
  - LANXESS is pushing polymeric Flame Retardant Emerald 3000 in APAC
  - LANXESS is developing new sustainable flame retardants

\* IHS 2017 Flame retardants, IHS 2017 Bromine

### Market environment

#### Supporting industry trends

- Consolidation of Chinese bromine manufacturers and depletion of domestic bromine supply in China
- Increased EHS regulation is putting pressure on Chinese producers since 2015

#### Main competitors

- ICL
- Albemarle
- Italmatch
- Wansheng
- Yoke

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## A leading player and innovation driver for phosphorus and bromine based chemistry

<b>Focus on specialities</b>	High-performance additives for a broad range of industries and applications
<b>Innovation leadership</b>	Technology, regulatory and safety expertise at its best
<b>Attractive growth</b>	Highly-specialized additives that benefit from regulatory trend towards sustainable “green” chemistry
<b>Strong value chains</b>	Attractive business set-up based on backward integration and long-term supply contracts



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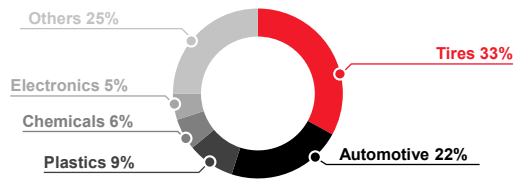
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## Rhein Chemie: Highest quality for additives and solutions to a variety of industries

**Key facts**

- **Segment:** Specialty Additives
- **Sales:** <€500 m
- **Customers:** ~3,000 in more than 120 countries
- **Products:** >2,000
- **Production:** 10 sites
- **Research:** World-class R&D center in Germany; 7 application development centers globally
- **Employees:** ~1,000
- **Market position:** Leading market position in main businesses
- **Business:** Solution provider for additives in rubber, plastics, construction and colorants applications

**Sales by end use 2018**



**Sales by region 2018**



## Focus on technical solutions for attractive end markets with well-known branded products

**Rubber Additives Business**

- Polymer-bound additives (Rhenogran®)
- High-performance bladders (Rhenoshape®)
- Release agents (Rhenodiv®)
- Tread marking paints (Rhenomark®)
- Processing promoters (Aktiplast®, Aflux®)
- Functional additives (Rhenofit®, Cohedur®)
- Zinc oxide (Bayoxide®, Zinkoxid aktiv®)

**Colorant Additives Business**

- Solvent dyes for the coloration of plastics (Macrolex®)
- Organic pigments for LCD color filter (Levascreen®)
- Pigments for automotive coating (Bayfast®) and plastics (Bayplast®)
- Organic- (Levanyl®) and inorganic- (Levanox®) pigment preparations
- High quality colorants for inks (Bayscript®)



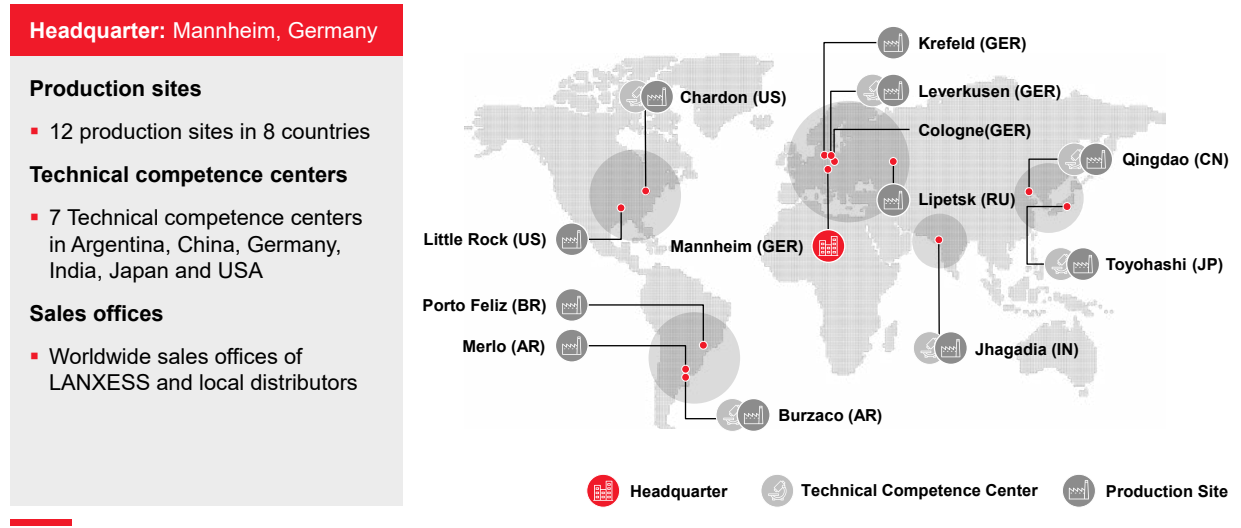
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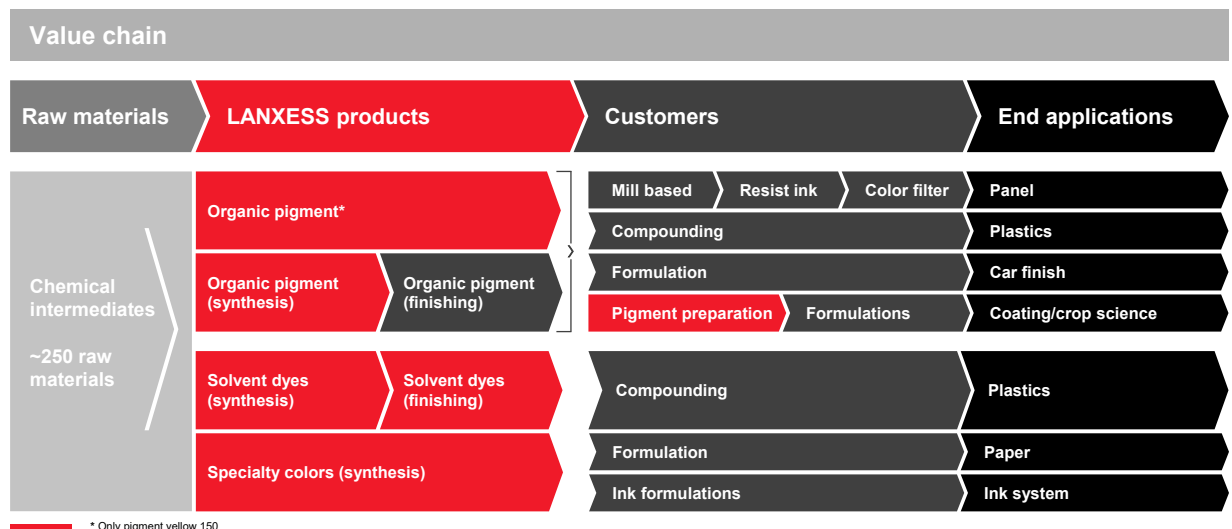
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## Worldwide competence & customer proximity



## Colorant Additives Business provides solutions to a broad variety of applications and industries



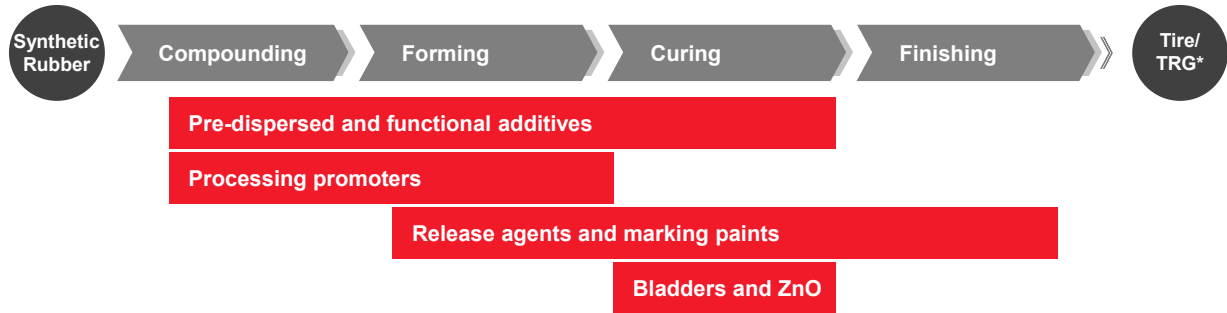
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## Broad portfolio of rubber additives from pre-dispersed and functional additives to process aids and auxiliaries



**Supporting global trends of our customers:**

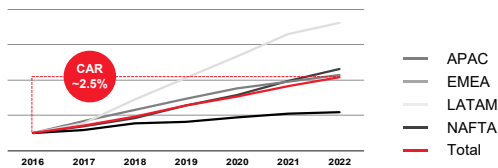
- Health and safety and environment
  - by making the production process cleaner
  - by making the production process more efficient
  - by supporting safer and greener finished goods
- Mobility by supplying solutions to enhance rolling resistance, wet-grip and wear resistance of tires

\* Technical rubber goods

## Rhein Chemie has a leading market position in its main business segments

### Market development

**Automotive market**



**Market development (CAGR 2017-2022)**

- **Global:** ~2.5%
- **Asia-Pacific:** ~3%
- **EMEA:** ~2%
- **North America:** ~1%
- **Latin America:** ~5%

**BU RCH global total demand: ~€2.5 bn**

Average demand growth of ~3% mainly driven by automotive and tire industry; some specialties with higher growth rates

### Market environment

**Supporting industry trends**

- Rhein Chemie’s growth in tires and automotive applications is driven by the megatrend mobility
- Key applications (plastics, electronics, printing inks) with continuously strong growth rates
- Tightening regulatory standards allow Rhein Chemie to benefit from its leading compliance organization and performance
- Stricter enforcement of environmental standards in developing countries (e.g. China and India) resulting in market consolidation

**Main competitors**

- Chemtrend
- MLPC/Arkema Group
- Clariant
- Ningbo Longxin

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## Rhein Chemie stands for highest quality in additives and solutions to a variety of industries

<b>Leading in niches</b>	World's leading provider of specialty additives for niche applications under the well-known Rhein Chemie brand
<b>Tailored solutions</b>	Leading competence in developing tailored solutions for customer products & processes
<b>Innovation driver</b>	High quality dyes combined with innovative manufacturing technology as competitive advantage
<b>Leading quality</b>	Quality as key principle in all our operations
<b>Global production</b>	High customer proximity with presence in all key markets



- 056** Inorganic Pigments
- 062** Leather
- 067** Material Protection Products
- 072** Liquid Purification Technologies



Business Segment

# Performance Chemicals



## Performance Chemicals: Production of application-focused chemicals for a wide range of industries

**Inorganic Pigments**



- A leading global supplier of inorganic pigments for the coloring of construction materials, coatings, plastics and for technical applications

**Leather**



- Supplier with a complete range of products for leather processing (tanning agents, preservatives, finishing auxiliaries, dye products)

**Material Protection Prod.**



- Wide range of microbial control products for construction and paints, beverages, industrial use and wood protection

**Liquid Purification Technol.**

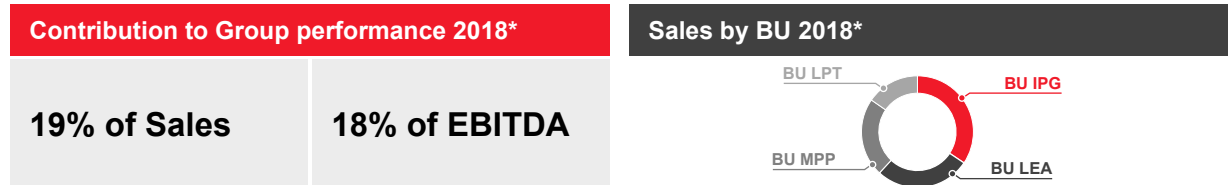


- One of the leading global producers of ion ex-change resins, adsorbers, functional polymers and reverse osmosis membranes for the treatment and purification of water and other liquids

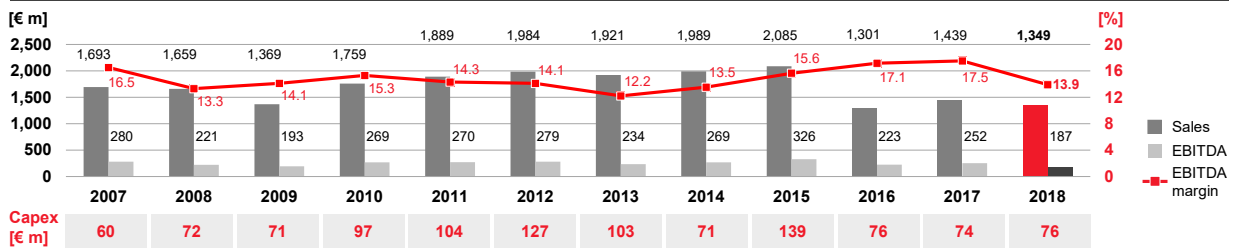
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## Performance Chemicals: Specialty chemicals for niche markets



### History of sales, capex and EBITDA (margin) 2007–2018



Note: All references to EBITDA are pre exceptional; pro forma restatements with new BU structure for 2016.  
As of 21 April 2017 BU Rheinchemie Additives left the Performance Chemicals segment to form part of the Specialty Additives segment  
\* Operating segments

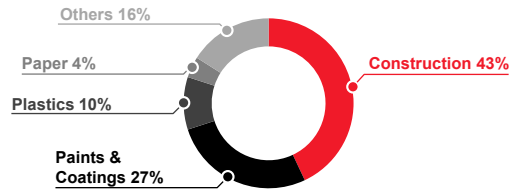


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## Inorganic Pigments – Iron oxide market leader serving diverse applications in a global market

Key facts	
▪ <b>Segment:</b>	Performance Chemicals
▪ <b>Sales:</b>	<€500 m
▪ <b>Customers:</b>	~3,000
▪ <b>Products:</b>	~1,100
▪ <b>Production:</b>	Production sites on five continents with a capacity of ~370,000 t/a
▪ <b>Employees:</b>	~1,500
▪ <b>Market position:</b>	Globally leading position in iron oxide pigment production and all target industries
▪ <b>Business:</b>	Leading manufacturer of inorganic iron oxide pigments with ~370,000 tons of own synthesis production capacity ensure a reliable global supply. Over 100 color shades in various delivery forms

### Sales by end use 2018



### Sales by region 2018

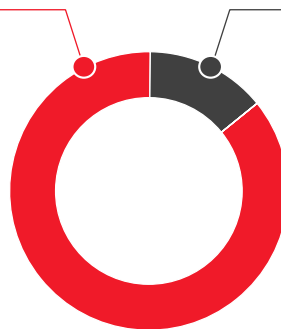


## Pigment market can be divided in Organic and Inorganic Pigments

### Segmentation of pigment market

#### Inorganic Pigments

- Market dominated by Titanium Dioxide
- Main applications: Coloring (Paints and Coatings, Construction, Plastics) and technical applications (Water purification, Catalysts, Brake linings)
- Wide range coloring (black, white, red, blue, green etc.) with more natural color shades
- Outstanding light and heat stability



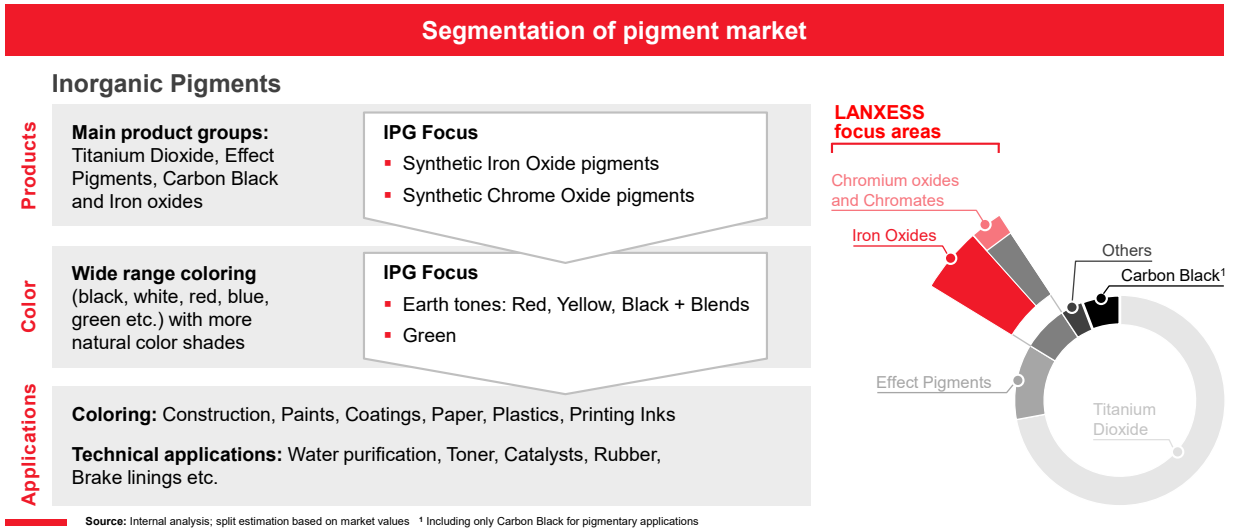
#### Organic Pigments

- Main product groups: Azo, Phthalocyanine and various High Performance Pigments
- Main applications: Printing Inks, Coatings and Plastics
- Brilliant colors with high tinting strength and wide color range
- Low light and heat stability







Source: Internal analysis; split estimation based on market values

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## IPG focusing on Synthetic Iron Oxide and Chromium Oxide Pigments and supplying high quality color and technical applications



## Inorganic pigments are used in coloring and various technical applications

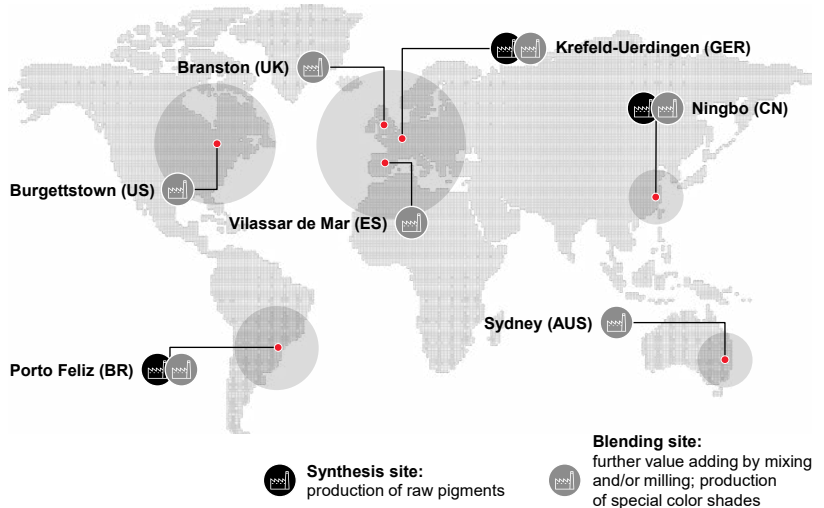
<p><b>Products and brands</b></p> <ul style="list-style-type: none"> <li>▪ Iron oxide pigments (red, yellow, brown, black)</li> <li>▪ Chromium oxide pigments (green)</li> <li>▪ LANXESS IPG main brands:</li> </ul> <div style="display: flex; justify-content: space-around;">    </div> 	<p><b>Color applications</b></p>  <p><b>Technical applications</b></p> 
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- 056** Inorganic Pigments
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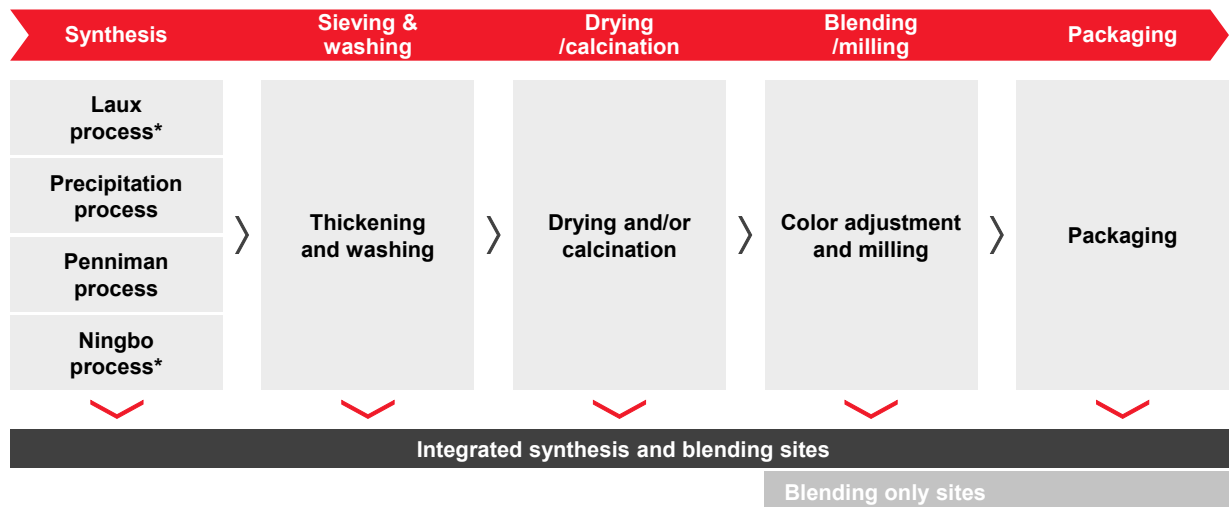
## Inorganic Pigments – A truly global player with synthesis plants and blending sites around the world

### Global asset network

- Production sites on five continents
- Global production capacity of ~370,000 tons
- Krefeld-Uerdingen is the heart of the LANXESS pigments business with over 90 years of experience in iron oxide pigment production
- Continuous investments into capacity expansions and advanced technologies
- Globally leading environmental standards as competitive edge






## Inorganic Pigments covers the full value chain of iron oxide pigments production



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## Global synthesis production network ensures supply security

<b>Germany, Krefeld- Uerdingen</b>	<ul style="list-style-type: none"> <li>▪ World's largest production site for iron oxide pigments</li> <li>▪ Capacity increase for micronized red pigments by approx. 5,000 t/a in 2018 through targeted debottlenecking</li> <li>▪ Capacity increase for black pigments by 13,000 t/a completed; further colors in progress</li> <li>▪ Leverage economies of scale with German production backbone</li> </ul>	
<b>Brazil, Porto Feliz</b>	<ul style="list-style-type: none"> <li>▪ Ongoing investments in new technology and process optimization</li> <li>▪ Additional capacity expansion of high-quality yellow iron oxide pigments by 2,000 t/a has been completed in 2019</li> <li>▪ Continuous investments in sustainable production, e.g., Cogen-plant</li> </ul>	
<b>China, Ningbo</b>	<ul style="list-style-type: none"> <li>▪ Most modern production plant for iron oxide red pigments in Asia</li> <li>▪ Located in Ningbo Petrochemical Economic &amp; Technology Development zone – which is a national level chemical park ranked as top 3 in China</li> <li>▪ State-of-the-art and sustainable pigment production is ensured by the use of innovative waste water and off-gas treatment</li> </ul>	

## Awarded National Green Plant status – LANXESS set a new benchmark for iron oxide production in China




**The Ningbo Process® is the greenest way to produce red iron oxides in the whole of Asia**

<ul style="list-style-type: none"> <li>▪ LANXESS is the only iron oxide producer to have received the <b>National Green Plant certificate</b> from the Chinese government</li> <li>▪ The Ningbo Process® technology measurably <b>minimizes the products environmental footprint*</b></li> <li>▪ ~100% waste gas removal and waste water treatment is ensured</li> </ul>		<p><b>Only 2% of conventional nitric oxides emissions</b> per ton of pigment are released <input checked="" type="checkbox"/></p> <p><b>Only 0.1% of conventional ammonium nitrate release</b> per ton of pigment in the waste water <input checked="" type="checkbox"/></p> <p><b>Just a minimum of 0.1% laughing gas emissions</b> compared to conventional red iron oxide production in China** <input checked="" type="checkbox"/></p>
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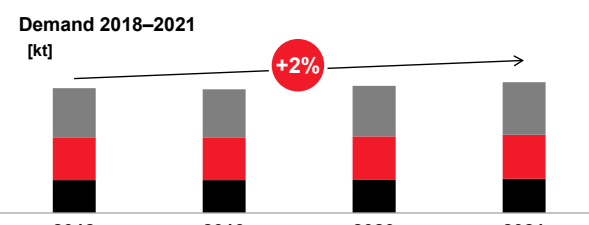
\* All figures are based on internal studies: LANXESS' Ningbo Process® technology is compared with the traditional Chinese Penniman Red production process which does not include additional waste water and waste gas treatment.  
 \*\* Laughing gas emissions equivalent to the annual CO2 per-capita output of ~1,000,000 Chinese citizens could be saved if only the Ningbo Process® would be used for red iron oxide production in China

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## Product innovation: Inorganic Pigments is technology leader in the field of iron oxides and chromium oxides

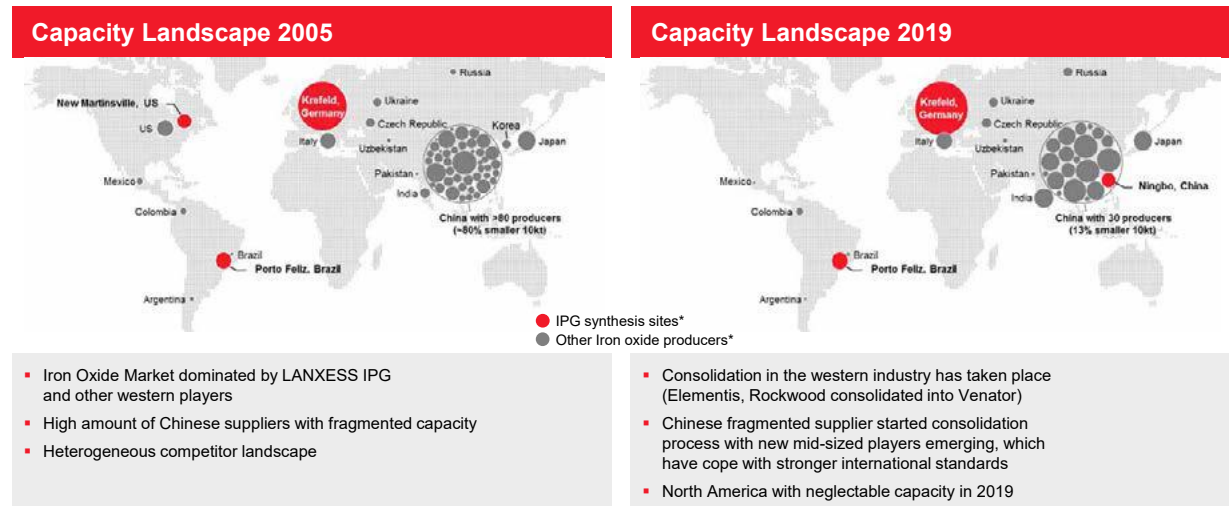
<b>3D-Printing</b> >	Different materials used for 3D Printing need universally applicable pigments with high performance in terms of heat stability and dispersibility. Iron oxides from LANXESS bring color to future technologies like 3D Printing.	
<b>Li-Ion Batteries</b> >	Iron oxide used as raw material for the manufacture of LiFePO4 as cathode material for batteries in e-mobility applications.	
<b>Cool Roofing</b> >	Bayferrox® 303 T provides higher solar reflectance than regular black pigments. Up to 20% more reflected infrared radiation leads to significantly lower roof tile's surface temperature.	

## Urbanization and increased sustainability awareness drive demand for Inorganic Pigments

<b>Market development</b>	<b>Market environment</b>
<p><b>Demand 2018–2021 [kt]</b></p>  <p>■ APAC ■ EMEA ■ Americas</p> <p><b>Demand growth (CAGR 2018-2021)</b></p> <ul style="list-style-type: none"> <li>■ Global: ~2%</li> <li>– Asia-Pacific: ~2%</li> <li>– EMEA: ~1%</li> <li>– Americas: ~1%</li> </ul> <p><small>Source: LANXESS volume estimates</small></p>	<p><b>Supporting industry trends</b></p> <ul style="list-style-type: none"> <li>■ Urbanization and increasing demand for pigments in emerging markets (e.g. India)</li> <li>■ Consolidation among Chinese iron oxide producers due to stricter enforcement of environmental laws</li> <li>■ General global trend towards quality products in all application fields</li> </ul> <p><b>Main competitors</b></p> <ul style="list-style-type: none"> <li>■ Venator</li> <li>■ Ferro</li> <li>■ Selected Chinese players: Cathay, Deqing, Yixing</li> </ul>

- 056 Inorganic Pigments
- 062 Leather
- 067 Material Protection Products
- 072 Liquid Purification Technologies

## Inorganic Pigments is the largest producer globally with leading environmental standards



## Inorganic Pigments – Market leader shaping the iron oxide market

<b>Market leader</b>	Leading global market position and by far largest state-of-the-art production network
<b>Broadest portfolio</b>	High-quality pigment portfolio covering full range of colors, supply forms and applications
<b>Strongest brands</b>	Strong and well-established brands: Bayferrox® synonymous with iron oxides in many markets
<b>Most competitive production</b>	Biggest world-scale plant including all relevant production process competencies with the only global footprint



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## Leather:

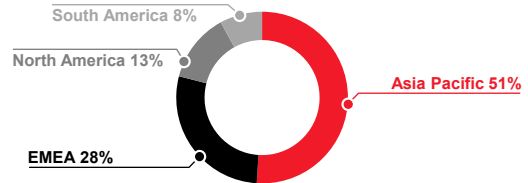
### One of the world’s leading organic leather chemical producers

Key facts	
▪ <b>Segment:</b>	Performance Chemicals
▪ <b>Sales:</b>	<€500 m
▪ <b>Customers:</b>	>1,000
▪ <b>Products:</b>	>500
▪ <b>Production:</b>	6 sites
▪ <b>Research:</b>	13 service centers
▪ <b>Employees:</b>	~1,300
▪ <b>Market position:</b>	Global #2 in leather chemicals
▪ <b>Business:</b>	One of the world’s leading suppliers of leather chemicals

#### Sales by end use 2018



#### Sales by region 2018



### Offering the complete product range for leather processing and chrome chemicals

Business Line Organic Leather Chemicals
<ul style="list-style-type: none"> <li>▪ High-quality products and services for all stages of the leather production process, one-stop-shop supplier in the market</li> <li>▪ Global technical on-site support</li> <li>▪ Application development, technical service and innovations significantly contributing to value creation</li> <li>▪ Additional business platform “Functional Coatings”: high performance coating systems for various non-leather substrates</li> </ul>

Business Line Chrome
<ul style="list-style-type: none"> <li>▪ Leading producer of the key intermediate sodium dichromate (SDC), which is converted into chrome chemicals for leather and various non-leather applications</li> <li>▪ Operational excellence along the chrome chemicals value chain &amp; highest HSEQ standards</li> <li>▪ Superior quality of SDC and downstream chrome chemicals CTS (chrome tanning salts) and CA (chromic acid)</li> </ul>



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## Leather offers the complete product range for leather processing and selected chrome products

Products and brands	Applications
<p><b>Leather chemicals</b></p> <ul style="list-style-type: none"> <li>▪ Preservatives</li> <li>▪ Beamhouse chemicals</li> <li>▪ Chrome-free tanning agents</li> <li>▪ Retanning chemicals</li> <li>▪ Binders</li> <li>▪ Colorants</li> <li>▪ Fatliquors</li> <li>▪ Finishing auxiliaries</li> <li>▪ Patent leather chemicals</li> </ul> <p><b>Chrome products</b></p> <ul style="list-style-type: none"> <li>▪ Chrome ore</li> <li>▪ Sodium dichromate</li> <li>▪ Chrome tanning salts</li> <li>▪ Chromic acid</li> <li>▪ Chrome oxide</li> </ul>	
<p> <span style="font-size: 2em; font-weight: bold; margin-right: 5px;">X</span> <b>X-Tan<sup>®</sup></b>                         <span style="font-size: 2em; font-weight: bold; margin-right: 5px;">X</span> <b>Tanigan<sup>®</sup></b>                         <span style="font-size: 2em; font-weight: bold; margin-right: 5px;">X</span> <b>Peltec<sup>®</sup> X-Zyme</b>  <span style="font-size: 2em; font-weight: bold; margin-right: 5px;">X</span> <b>Aquaderm<sup>®</sup></b>                         <span style="font-size: 2em; font-weight: bold; margin-right: 5px;">X</span> <b>Chromosal<sup>®</sup></b> </p>	

## Leather has a global production and service network close to major markets

Global set-up of BU LEA	
<ul style="list-style-type: none"> <li>▪ Global production network to serve worldwide demand                             <ul style="list-style-type: none"> <li>– BL OLC production sites: Leverkusen (Germany), Changzhou (China), Filago (Italy)</li> <li>– BL CR production sites*: Rustenburg chrome ore mine (South Africa), Newcastle (South Africa), Merebank (South Africa)</li> </ul> </li> <li>▪ Strong presence in faster growing Asian and BRICS markets</li> <li>▪ Global sales force team and strong distribution networks taking care of customers worldwide</li> <li>▪ Well trained and experienced technical support</li> <li>▪ Technical centers in all major markets</li> </ul>	<p style="text-align: center;"> <span style="font-size: 1.5em;">🏭</span> Production Site                         <span style="font-size: 1.5em;">🔬</span> Technical Center/Service Lab                         <span style="font-size: 1.5em;">👤</span> Sales Area Center                 </p>
<p><small>* Chrome chemicals production in Zarate (Argentina) was closed by end of 2017</small></p>	

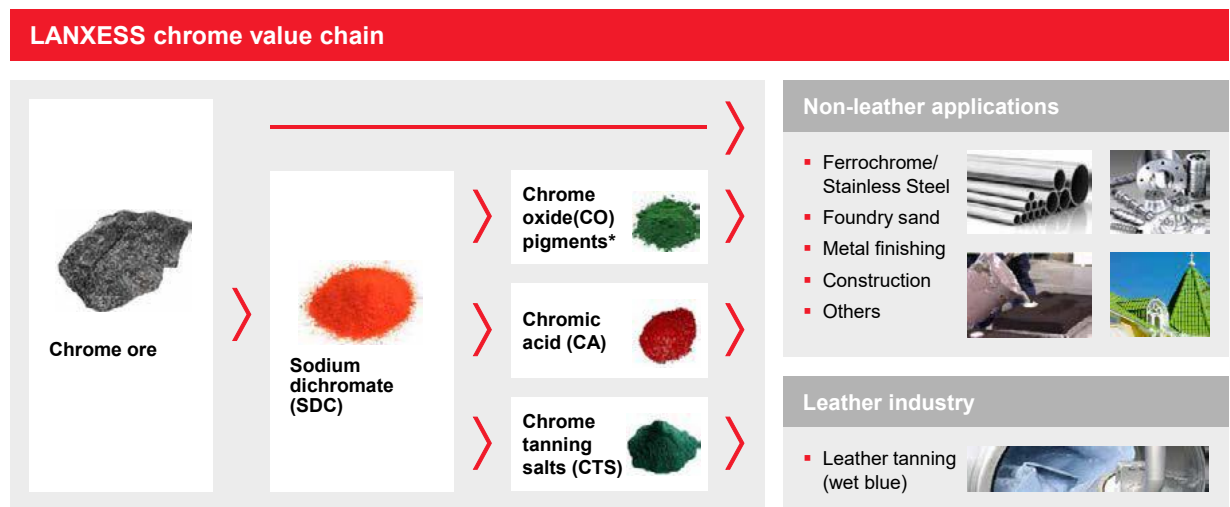


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## Leather: Complete product range for leather processing and excellent technical service



## Chrome: Integrated value chain in South Africa from chrome ore to chrome chemicals production



\* produced by LANXESS BU IPG

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## A strong player with leading positions in both businesses: Organic leather chemicals and chrome products


Leather


**Markets & trends**

- Leather chemicals demand is driven by amount of processed hides – sustainable products & solutions gaining increasing importance
- Shoe is the largest application for leather, followed by upholstery (automotive and furniture)
- Supporting growth trends: mobility, urbanization
- Challenge: substitution by alternative materials

**Competitive landscape**

- Consolidation ongoing
- LEA is global #2
- Main competitors: Stahl, TFL, Smit & Zoon, Trumpler, Zschimmer & Schwarz






## Innovations and sustainability focus positions LANXESS Leather as the preferred industry partner

Sustainability focus

LEA developed recycling concepts for the production of leather and chrome chemicals

- X-Biomer in-situ**
  - concept for tanneries to turn shavings, which arise during leather manufacturing process, into re-tanning polymers
  - Project was funded by BMBF and LANXESS received the innovation price for climate & environment in February 2018
  - Per concept unit the CO2 savings are expected to be in the range of 600–700 mt
- Cromtec® GC**
  - converting chrome ore residues into a sellable product with multiple application areas
- Vanadium concentrate**
  - refining of by-products from SDC production in line with growing vanadium demand for various industries (e.g. energy storage)

LEA offers ecofriendly X-series products for tanners' sustainable success  
LEA emphasizes a holistic "Sustainable Leather Management" approach



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## Key leather markets growing in line with increasing industrialization

Market development	Market environment																
<p><b>Beef consumption determines raw hide availability, thus contributing to demand for leather chemicals</b></p> <p>Beef consumption [million t]</p> <table border="1"> <caption>Beef consumption growth (CAGR, 2014-2019)</caption> <tr> <td>Global:</td> <td>&lt;2%</td> <td>Latin America:</td> <td>&lt;2%</td> </tr> <tr> <td>Asia-Pacific:</td> <td>~2%</td> <td>Others:</td> <td>~2%</td> </tr> <tr> <td>Europe:</td> <td>&lt;1%</td> <td></td> <td></td> </tr> <tr> <td>North America:</td> <td>~1%</td> <td></td> <td></td> </tr> </table> <p><small>Source: OECD-FAO 2014; <sup>1</sup> Novotroitsk Plant of Chromium Compounds; <sup>2</sup> Aktyubinsk Chromium Chemicals Plant</small></p>	Global:	<2%	Latin America:	<2%	Asia-Pacific:	~2%	Others:	~2%	Europe:	<1%			North America:	~1%			<p><b>Supporting industry trends</b></p> <ul style="list-style-type: none"> <li>▪ Increasing demand for sustainable products &amp; solutions for hide processing</li> </ul> <p><b>Main competitors</b></p> <ul style="list-style-type: none"> <li>▪ Leather chemicals                     <ul style="list-style-type: none"> <li>– Stahl, TFL, Smit &amp; Zoon, Trumpler, Zschimmer &amp; Schwarz</li> </ul> </li> </ul>
Global:	<2%	Latin America:	<2%														
Asia-Pacific:	~2%	Others:	~2%														
Europe:	<1%																
North America:	~1%																

## LANXESS' leather business with a leading position in organic leather chemicals

<b>Quality leader</b>	Innovative portfolio range with competent technical service for leather manufacturing
<b>Highest standards</b>	Streamlined production set-up with highest HSEQ standards
<b>Innovation driver</b>	Implementation of new business models for leather manufacturing
<b>Focus on sustainability</b>	Strong focus on sustainability and circular economy



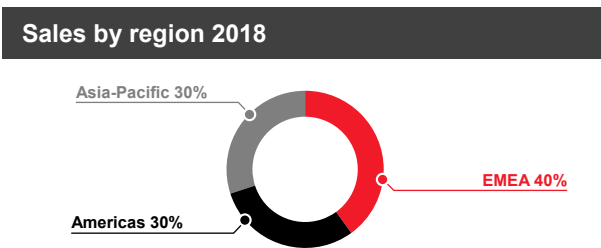
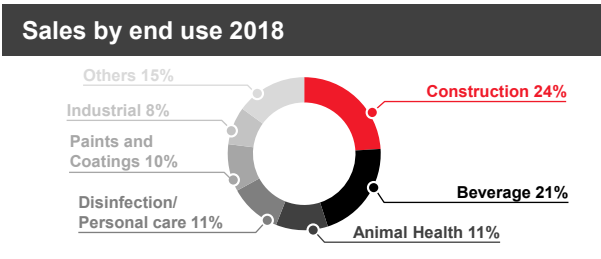
Advanced Intermediates | Specialty Additives | **Performance Chemicals** | Engineering Materials

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## Material Protection Products is a global leader in biocides for disinfection and consumer protection

**Key facts**

- **Segment:** Performance Chemicals
- **Sales:** <€500 m
- **Customers:** ~2,200
- **Products:** ~450
- **Production:** 9 sites
- **Research:** 9 technical service labs
- **Employees:** ~500
- **Market position:** Among top 5 biocides companies
- **Business:** Global leader in biocides for wood protection, construction and disinfection  
Global customer service organization provides leading technical and regulatory support



## The business unit is divided into three business lines to optimally serve the market needs

**Structure of BU Material Protection Products**

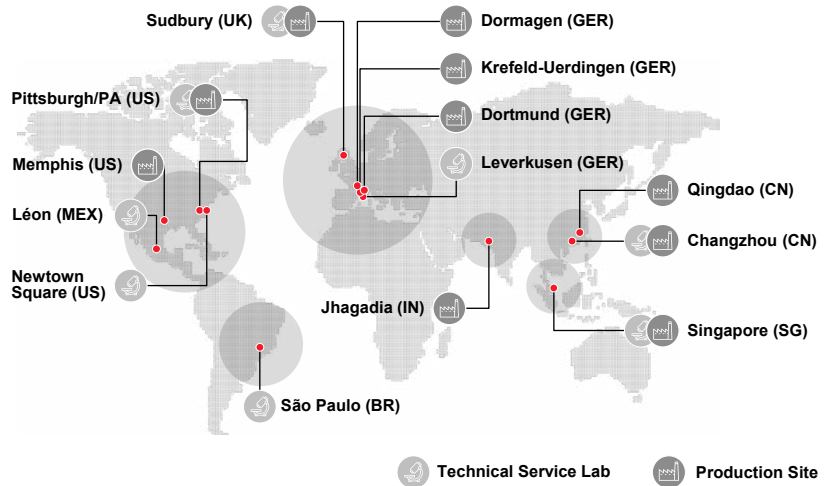
Actives & Disinfection	Biocides	Beverage Technology
<ul style="list-style-type: none"> <li>▪ Actives for disinfection and non-biocidal applications</li> <li>▪ Disinfectants</li> </ul>	<ul style="list-style-type: none"> <li>▪ Actives and preservatives for                             <ul style="list-style-type: none"> <li>- Paints and coatings</li> <li>- Industrial applications</li> <li>- Construction</li> <li>- Process Control</li> <li>- Wood protection</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Cold sterilization agent for                             <ul style="list-style-type: none"> <li>- Non-alcoholic soft drinks</li> <li>- Wine</li> <li>- Beer-mixes</li> <li>- Cider</li> </ul> </li> <li>▪ Natural preservative for non-alcoholic drinks</li> </ul>
<p>X <b>OXONE</b> X <b>Preventol</b> X <b>Virkon</b></p>	<p>X <b>Preventol</b> X <b>Biox</b> X <b>Biochek</b></p>	<p>X <b>Velcorin</b> X <b>Velcorin DT Touch</b> X <b>Nagardo</b></p>

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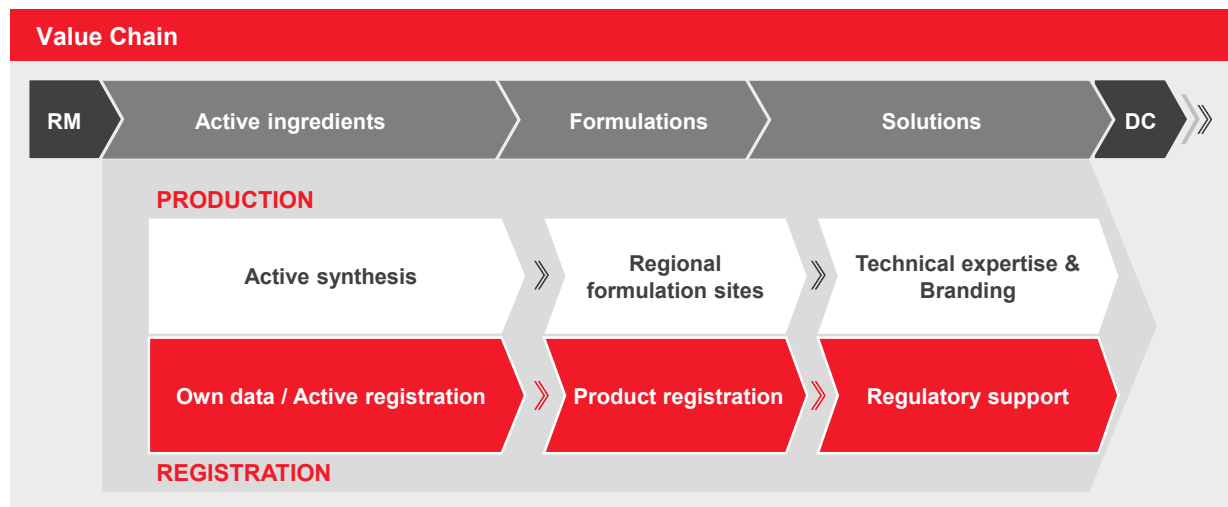
## Material Protection Products – Strong international setup to serve global demand for microbial control products

**Global Service**

- Production sites in China, Germany, India, Singapore, UK and USA
- Local technical support – Laboratories in Brazil, China, Germany, Mexico, UK, Singapore and USA
- Global and local experts for regulatory affairs
- Present with local sales offices with dedicated MPP staff or carefully selected distribution partners



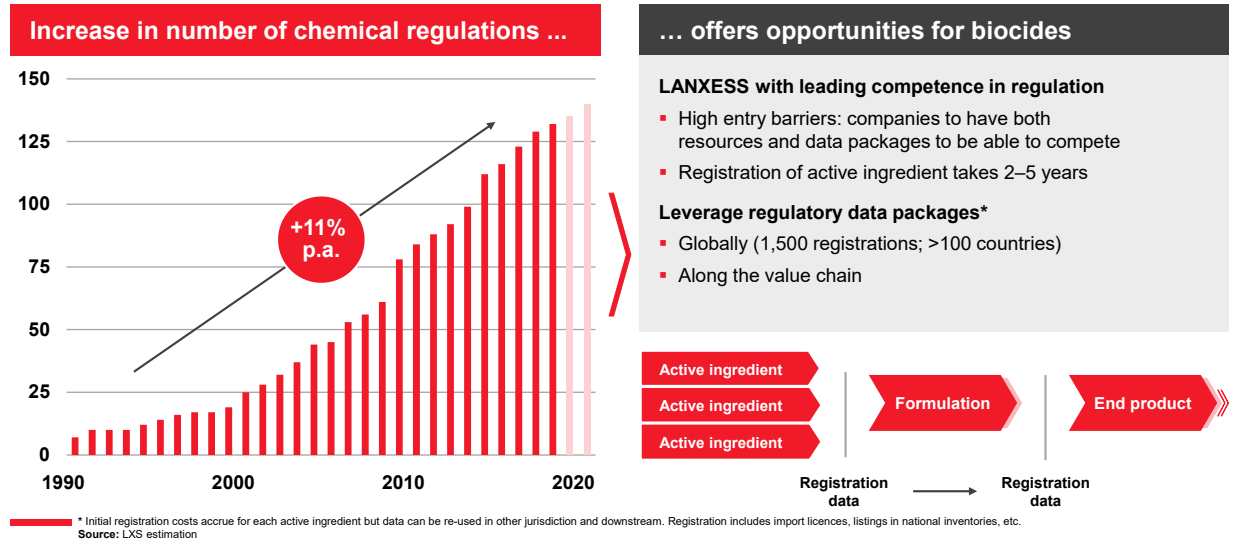
## The value chain comprises both production and registration, which constitutes MPP’s core strength



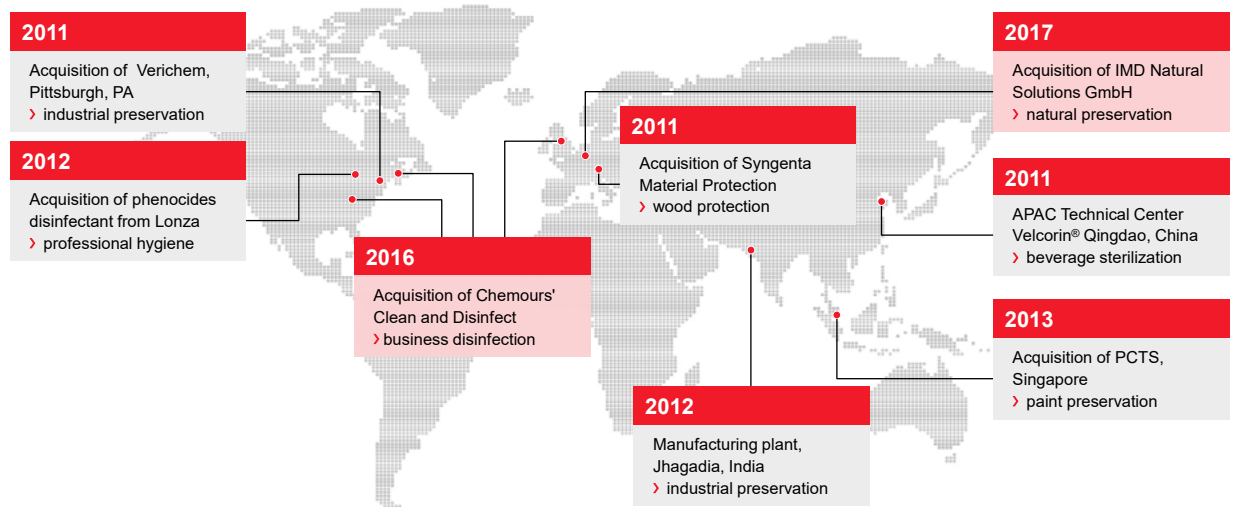
RM = Raw Material, DC = Distribution Channel

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## Trend towards tighter chemical regulation as key driver for LANXESS' biocides business




## Continued focus on growth at Material Protection Products: A combination of organic and external growth



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## Entered the market of natural preservatives with the acquisition of IMD Natural Solutions

<b>IMD Natural Solutions</b>	<ul style="list-style-type: none"> <li>▪ Acquisition in 2017</li> <li>▪ Delivering innovative, nature derived ingredients to protect mainly beverages, food and cosmetics</li> <li>▪ 9 employees with laboratory in Dortmund</li> </ul>	
<b>Natural Preservative</b>	<ul style="list-style-type: none"> <li>▪ Natural glycolipids derived from edible fungi</li> <li>▪ Production by fermentation &amp; extraction (biotechnology)</li> <li>▪ Unique profile for application in beverages</li> </ul>	 <p>Dacryopinax sp.      Fermentation</p>
<b>Strategy Nagardo™</b>	<ul style="list-style-type: none"> <li>▪ Sole new powerful natural preservative launching since many years</li> <li>▪ Expansion of portfolio as full solution provider to beverage industry</li> <li>▪ Market entry US ongoing, global rollout to follow with local approvals</li> </ul>	 <p>THE WORD "NATURAL" 59% SHOPPERS LOOK FOR "NATURAL" ON LABELS 66% BELIEVE "NATURAL" MEANS NO ARTIFICIAL INGREDIENTS, PESTICIDES OR GMOs <small>SOURCE: CONSUMER REPORTS</small></p>

## Identifying innovations that fit to our business – A natural preservative derived by an edible fungus

<b>Acquisition of IMD Natural Solutions done in 2017</b>	<ul style="list-style-type: none"> <li>▪ 9 FTE with a lab in Dortmund, Germany</li> </ul>	
<b>Rationale</b>	<ul style="list-style-type: none"> <li>▪ Strong trend to replace chemicals with natural preservatives</li> <li>▪ LANXESS has a global sales force and regulatory expertise</li> <li>▪ Currently no comparable natural product on the market</li> </ul>	
<b>Potential:</b>	<ul style="list-style-type: none"> <li>▪ Key market: USA; FDA approval received in 2018, further market approvals in preparation</li> <li>▪ First substantial sales in 2020</li> <li>▪ Full potential to be reached 2025–2030</li> </ul>	

**Accessible initial market (USA):**  
**~€200–250 m**

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## Material Protection Products: Benefiting from increasing demand and positive industry trends

Market development	Market environment
<p><b>Total global demand 2019e:</b></p> <ul style="list-style-type: none"> <li>▪ Industrial Biocides ~€7.0 bn</li> <li>▪ Animal Disinfection ~€2.9 bn</li> </ul> <p><b>Demand growth (CAGR 2019-2025)</b></p> <ul style="list-style-type: none"> <li>▪ Industrial Biocides ~3–5%</li> <li>▪ Animal Disinfection ~6–8%</li> </ul>	<p><b>Supporting industry trends</b></p> <ul style="list-style-type: none"> <li>▪ Increasing meat consumption and minimized antibiotics usage drive demand for veterinary hygiene and disinfection</li> <li>▪ Urbanization in emerging countries drives growth in construction sector</li> <li>▪ Trend towards healthier and functional beverages fosters growth of Velcorin®</li> </ul> <p><b>Main competitors</b></p> <ul style="list-style-type: none"> <li style="width: 33%;">▪ Dupont</li> <li style="width: 33%;">▪ Thor</li> <li style="width: 33%;">▪ Neogen</li> <li style="width: 33%;">▪ Lonza</li> <li style="width: 33%;">▪ BASF</li> <li style="width: 33%;">▪ Elanco</li> </ul>

## Material Protection products with compelling business model combining innovative products and regulatory know-how

<b>Competence leader</b>	Broadest regulatory expertise with global access to registration data within a highly regulated business environment
<b>Focus on specialties</b>	State-of-the-art equipped microbiological, application and research laboratories
<b>Application know-how</b>	Local technical support offering customized and flexible solutions
<b>Innovation driver</b>	Driving adjacent growth opportunities with innovative solutions for various end markets



**QUALITY WORKS.**



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## Liquid Purification Technologies – A leading global solution supplier for water treatment

Key facts	
▪ <b>Segment:</b>	Performance Chemicals
▪ <b>Sales:</b>	<€500 m
▪ <b>Customers:</b>	>1,500
▪ <b>Products:</b>	>220
▪ <b>Production:</b>	3 sites
▪ <b>Research:</b>	5 application development centers globally
▪ <b>Employees:</b>	>500
▪ <b>Market position:</b>	One of global top 3 players in ion exchange resins (IXR), steadily growing reverse osmosis (RO) membrane business
▪ <b>Business:</b>	Ion exchange resins, iron oxide adsorbers and functional polymers RO membrane elements and UF membranes (regionally focused)

### Sales by end use 2018



### Sales by region 2018



## Comprehensive product portfolio provides advanced solutions for treatment of water

Products and brands	
<b>X Lewatit®</b>	▪ Ion exchange resins, adsorbers and functional polymers
<b>X Lewabrane®</b>	▪ Reverse osmosis membrane elements
<b>X Bayoxide®</b>	▪ Granular iron oxide adsorbers for water treatment
<b>LewaPlus®</b>	▪ Engineering design platform for both ion exchange and reverse osmosis equipment dimensioning



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## Tailor-made solutions for over 500 applications in key industries

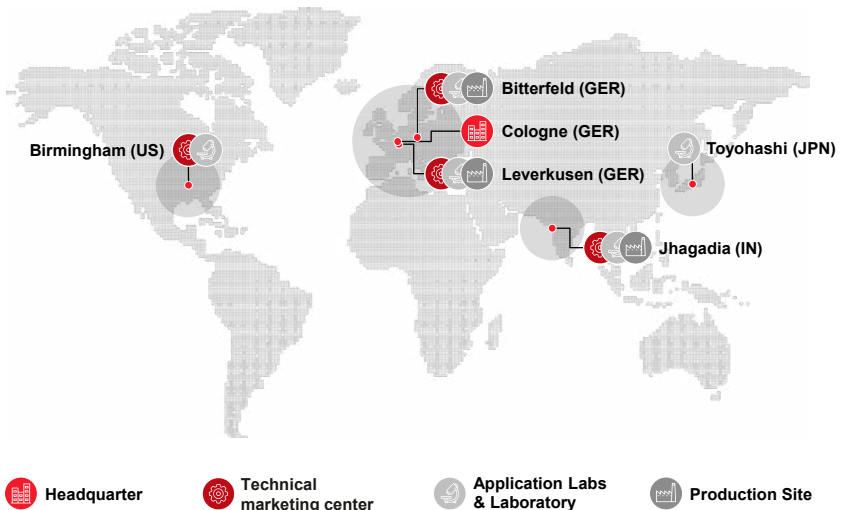
<p><b>Water treatment</b></p> <ul style="list-style-type: none"> <li>▪ Cartridges for water softening</li> <li>▪ Drinking and groundwater remediation, removal of contaminants</li> <li>▪ Removal of heavy metals and organic contaminants from water and gas to allow reuse/recycling</li> <li>▪ Desalination of brackish water and seawater to produce drinking water</li> </ul>	<p><b>Food and beverages</b></p> <ul style="list-style-type: none"> <li>▪ Beverages (soft drinks, juices, beer): Softening, desalination, de-bittering</li> <li>▪ Sugar and sweeteners: Decolorization, demineralization, final cleaning, inversion, chromatography</li> <li>▪ Industrial food processing</li> </ul>	<p><b>Mining</b></p> <ul style="list-style-type: none"> <li>▪ Recovering base metals, rare earths and precious metals</li> <li>▪ Processing metal concentrates: E.g. purification of electrolytes</li> <li>▪ Acid processing</li> <li>▪ Treatment of mining wastewater: E.g. removing heavy metal traces</li> </ul>
<p><b>Power generation</b></p> <ul style="list-style-type: none"> <li>▪ Fossil fuel and nuclear power plants:             <ul style="list-style-type: none"> <li>– Demineralization of boiler feed water</li> <li>– Condensate polishing</li> <li>– Water treatment in cooling ponds</li> <li>– Wastewater treatment</li> </ul> </li> </ul>	<p><b>Chemistry and petrochemistry</b></p> <ul style="list-style-type: none"> <li>▪ Catalysis for industrial products, e.g. BPA*, MTBE**</li> <li>▪ Chloralkali electrolysis (brine processing)</li> <li>▪ Process stream treatment &amp; recycling</li> <li>▪ Purifying organic chemicals e.g. using adsorbers</li> <li>▪ CO<sub>2</sub>/COS capture</li> </ul>	<p><b>Electronics &amp; microelectronics</b></p> <ul style="list-style-type: none"> <li>▪ Treating ultrapure water to manufacture:             <ul style="list-style-type: none"> <li>– Semiconductors</li> <li>– LCD screens</li> <li>– Solar cells</li> <li>– LED components</li> </ul> </li> </ul>

\* Bisphenol AM; \*\* Methyl-tert-butylether

## Strong global presence for liquid purification products and solutions

**A reliable partner for our customers – Worldwide**

- Global presence via production network, research and application labs, technical marketing centers, warehouses and sales force
- Three state-of-the-art production sites in Germany and India
- Five application development centers
- Global sales with approx. 60 direct marketing experts and strong distribution networks



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## Well positioned as premium solution provider for water treatment, liquid purification & recycling

Customer Challenges

LPT Solutions

<b>Lewatit®</b>	<ul style="list-style-type: none"> <li>▪ Complete product portfolio</li> <li>▪ Unique product features enable high-end applications                             <ul style="list-style-type: none"> <li>– Monodispersity</li> <li>– Phtalimide chemistry</li> </ul> </li> </ul>	<b>Solution Provider Services</b> <ul style="list-style-type: none"> <li>▪ Global technical service</li> <li>▪ LewaPlus® design software</li> <li>▪ Regulatory competence</li> </ul>
<b>Lewabrane®</b>	Natural extension of portfolio	
<b>Bayoxide®</b>		

- One of the world's leading solution providers of premium ion exchange resins, iron oxide adsorbers and RO membranes used by various players in the water treatment industry (OEMs, distributors, end-users)
- Products provide intelligent solutions to meet the challenges associated with the global water shortage
- Comprehensive know-how in trouble shooting, installation design and feasibility studies

## Lewatit: Unique process knowledge allows top performance in high-end applications

**Example: Demineralization of Water**

● **unwanted ions**  
(e.g. Ca<sup>2+</sup>, Mg<sup>2+</sup>, Na<sup>+</sup>, K<sup>+</sup> and NH<sub>4</sub><sup>+</sup>)

● **H<sup>+</sup> ions**

● **IXR**

**IXR are functional plastic beads that can change the composition of water**

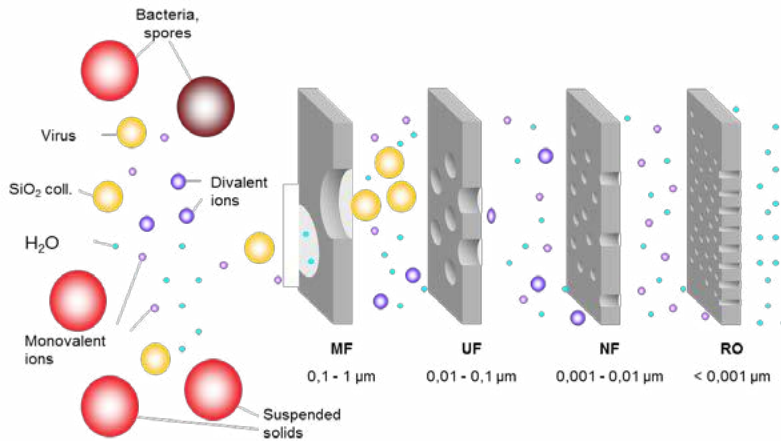
**High-end offering**

- a complete portfolio of ion exchange resins – Focusing on high-value applications
- a special production technology for uniform bead sizes – Helping customers to increase efficiency in use
- a unique phtalimide chemistry which is the basis to produce a broad portfolio of different chelating selective resins

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## Reverse osmosis membrane technology for high quality water treatment complements the portfolio

### Four major membrane technologies for water treatment



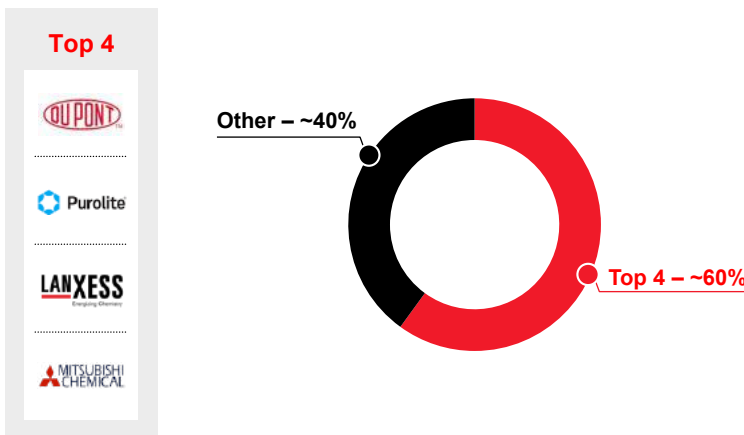
\* e.g. nitrates, heavy metals, pesticides, herbicides, viruses, bacteria MF: Micro Filtration, UF: Ultra Filtration, NF: Nano Filtration, RO: Reverse Osmosis

### Technology properties

- RO is a demineralization technique applying pressure to force water through a semi-permeable membrane in the direction reverse to the natural process of osmosis
- The semi-permeable membrane allows water to pass through freely but retains all suspended solids and most dissolved ions
- RO technology mainly used for desalination and complementary to ion exchange resin processes:
  - Membranes offer additional separation\*
  - Membrane separation is physical while ion exchange resin is chemical based
- Attractive market expected to grow at double digit rate

## Around 60% of the global Ion exchange resins segment share covered by TOP 4, but still significant room for specialization

### Operating in a consolidated market



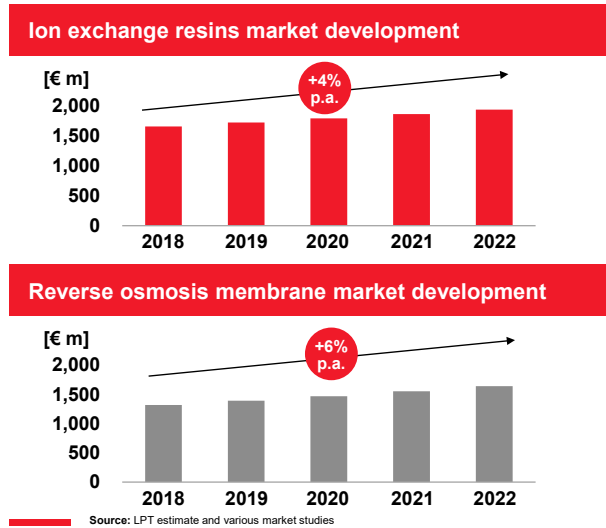
Source: LPT estimate and various market studies

### LXS strategic advantage

- 3 manufacturing sites with unique production characteristics enable wide product variety and specialization
- Experienced commercial & technical sales team delivers customer-specific application know-how globally
- Readiness to participate and invest in new application development and overall market growth

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## Benefiting from favourable global trends



**Market environment**

**Supporting industry trends**

- Rising demand for drinking water treatment in a rapidly urbanizing world due to population growth and increasing pollution
- Increasing demand for processed food especially in emerging countries
- Higher living standards drive demand for removal of pharmaceuticals and other chemical substances in water
- Changing economy and ecology standards require more efficient (cost and environment) industrial, mining and chemical processes

**Main competitors**

▪ Dow Water & Process Solutions	▪ Hydranautics	▪ Purolite
▪ Mitsubishi Chemicals	▪ Toray	

## Diverse growth opportunities for Liquid Purification Technologies

**Key growth drivers**

Drinking Water		<p><b>Population growth</b> and increased <b>environmental pollution</b> drive need to purify contaminated drinking water sources in municipal and POU/POE<sup>1</sup> systems</p>
Industrial		<p>High operational reliability and efficiency in <b>sensitive water/steam cycle</b> of power plants and industrial facilities by monodisperse resins</p>
Food		<p><b>Rising need for sugar, natural sweeteners</b> and <b>processed food</b> due to the growing population and driven by higher standards governing process</p>
Specialized Processing		<p><b>Increasing chemical output</b> and expansions in chloralkali, catalysis and <b>waste water treatment</b> driving demand for selective impurity removal</p>

<sup>1</sup> Point of Use/Point of Entry

**Growth options**

- Debottlenecking measures in ion exchange resins production at all LPT sites worldwide, e.g. ion exchange resins production, Leverkusen (Germany), start-up H2 2019 with single-digit € m capex input
- Development of ion exchange resins portfolio variety
- Expand on Solution Provider Strategy
- Broaden geographical reach
- Organic growth: Option to build-up production footprint (new assets) in North America or China

Advanced Intermediates | Specialty Additives | **Performance Chemicals** | Engineering Materials

- 056** Inorganic Pigments
- 062** Leather
- 067** Material Protection Products
- 072** Liquid Purification Technologies

## Water becoming the new gold – Leading solutions for the most efficient use of scarce water resources

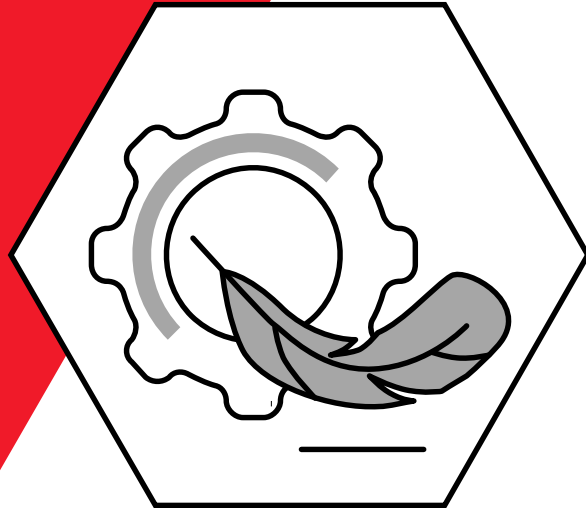
<b>Unique skills set-up</b>	Leading global solution provider with excellent technical and application know-how
<b>Decades of experience</b>	Competence in water treatment, liquid purification and recycling for 80 years
<b>Certified premium products</b>	Complementary premium products Lewatit®, Bayoxide® and Lewabrane®; German standards and certified by international organizations
<b>Highest customer proximity</b>	Global sales force providing highest customer service levels across various industries





Business Segment

# Engineering Materials



## Engineering Materials: Innovative plastic solutions for challenging industrial and automotive applications

### High Performance Materials



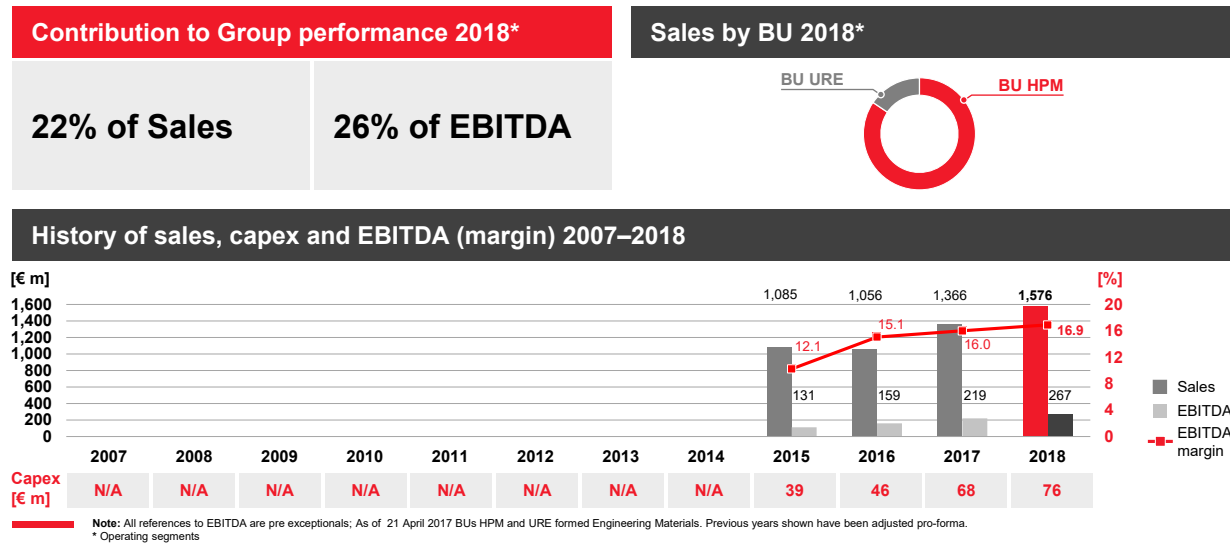
- One of the leading providers of a wide range of engineering plastic compounds for the automotive, electrical and electronic and other industries, benefiting from the trend of replacing metal in structural automotive parts

### Urethane Systems



- Leading market and technology position for cast elastomer systems. Products are highly customer specific offering abrasion resistance with various degrees of hardness

## Engineering Materials: Extended value chain yields significant earnings improvement





## High Performance Materials – A leading supplier of engineering plastics solutions

Key facts	
▪ <b>Segment:</b>	Engineering Materials
▪ <b>Sales:</b>	€1,000–1,500 m
▪ <b>Customers:</b>	~700
▪ <b>Products:</b>	~650
▪ <b>Production:</b>	10 sites
▪ <b>Research:</b>	7 product application development center
▪ <b>Employees:</b>	~1,700
▪ <b>Market position:</b>	#2 in Europe and top 5 globally
▪ <b>Business:</b>	<ul style="list-style-type: none"> <li>– BU HPM provides a wide range of engineering plastics (compounds) to core industries across the world</li> <li>– Upstream-integration in strategic raw materials</li> <li>– Supported by a global production and R&amp;D network with cost leadership position</li> </ul>

### Sales by end use 2018



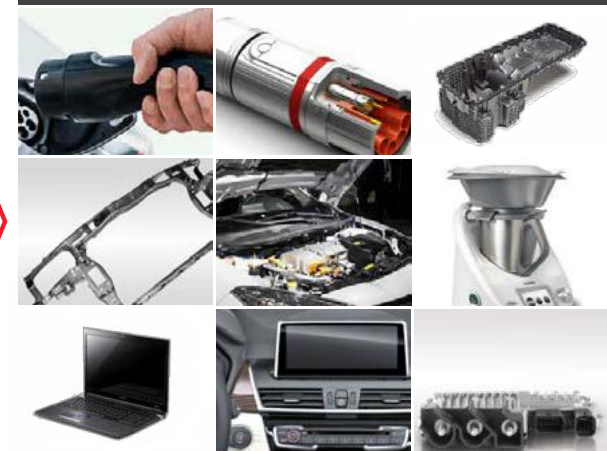
### Sales by region 2018



## Customized solutions to enable light weighting and miniaturization to comply with tighter emission regulations

Brands, products and applications		
<b>X Durethan<sup>®</sup></b>	Polyamide 6 (PA6) and polyamide 6.6 (PA6.6) based plastics	<ul style="list-style-type: none"> <li>▪ Automotive</li> <li>▪ E&amp;E</li> <li>▪ Construction</li> </ul>
<b>X Pocan<sup>®</sup></b>	Polybutylene terephthalate (PBT) based plastics	<ul style="list-style-type: none"> <li>▪ Automotive</li> <li>▪ E&amp;E</li> </ul>
<b>X Tepex<sup>®</sup></b>	Continuous fiber-reinforced thermoplastic composite sheets	<ul style="list-style-type: none"> <li>▪ Automotive</li> <li>▪ Sports</li> <li>▪ Consumer electronics</li> </ul>
<b>X HiAnt<sup>®</sup></b>	Product and application development service package	<ul style="list-style-type: none"> <li>▪ Integral to added value compounds business</li> </ul>

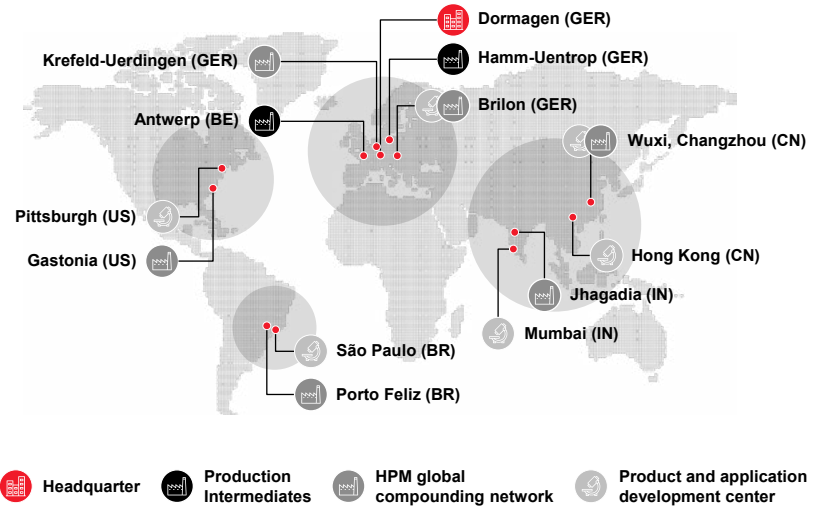
### Applications



## Strong setup to serve a global customer base

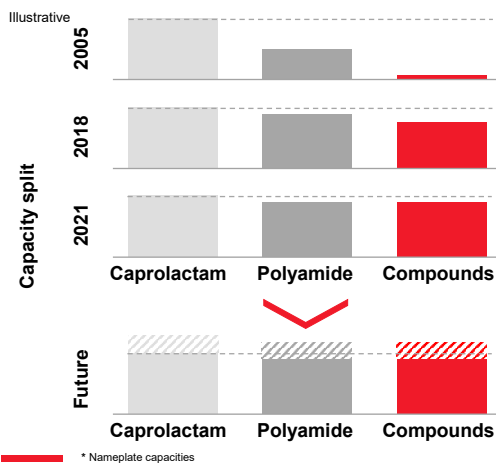
### A reliable partner – Worldwide

- HPM offers a wide range of high-tech plastics to core industries (e.g. automotive, electronics, construction etc.)
- Global network guarantees market and customer proximity
- Global quality guaranteed by uniform production standards worldwide
- Security of supply by backwards integration into strategic raw materials
- Drive innovation to provide tailored activities and services

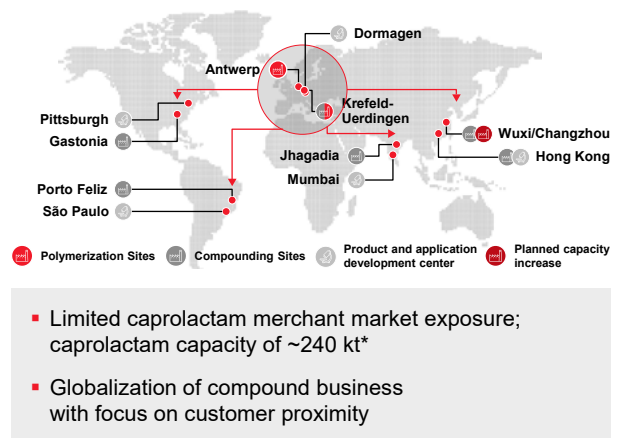


## Focus on innovative engineering compounds with an integrated and balanced value chain

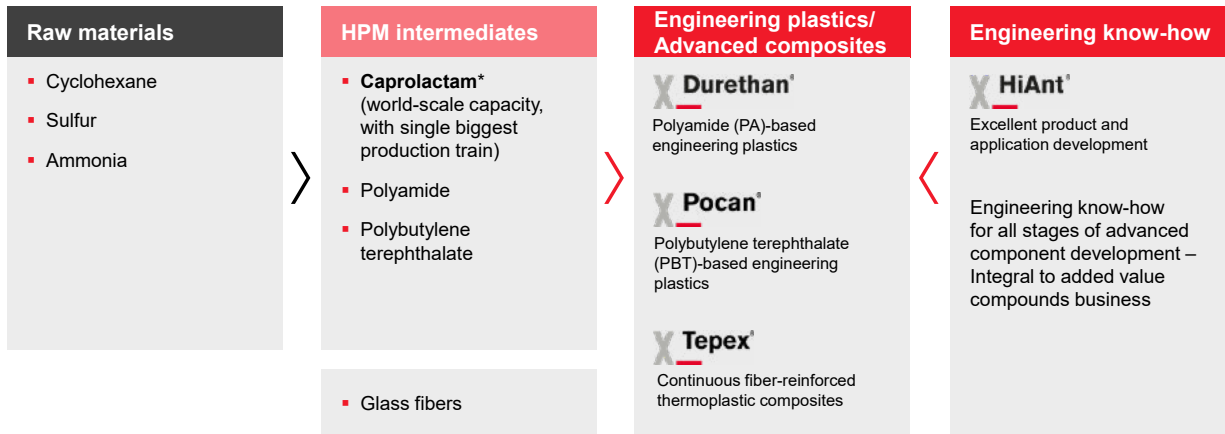
### Long-term balanced capacity strategy



### Flexible global production setup






## Our customers benefit from an efficient value chain combined with high-end engineering



**Top quality and high security of supply combined with technical expertise**

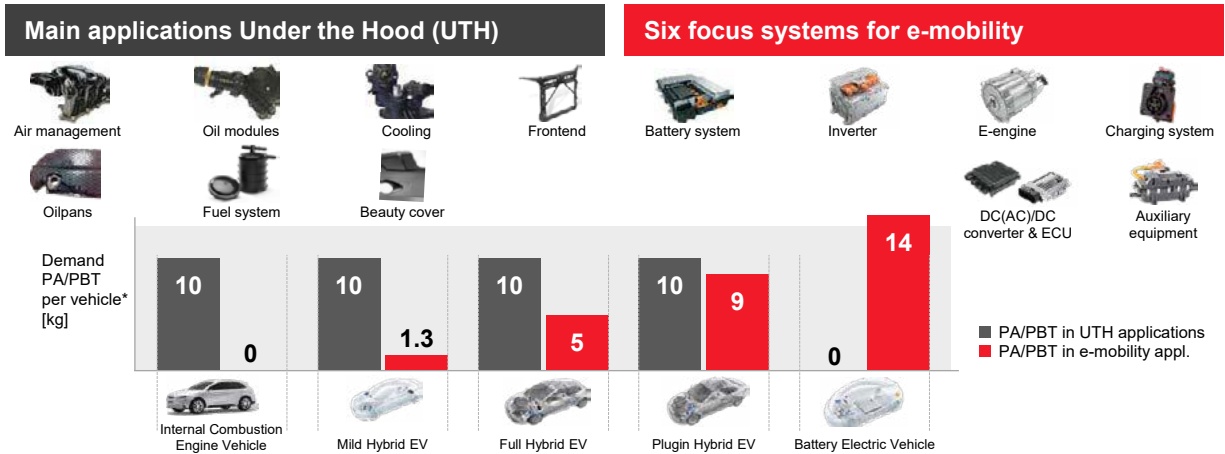
\* Caprolactam is the starting material for the polymerization of polyamide 6

## Electric vehicles offer additional potential for High Performance Materials products

 <p><b>E-engines</b></p>	<p><b>New systems required for electric vehicles</b></p> <ul style="list-style-type: none"> <li>▪ Inverter (power electronic)</li> <li>▪ Charging systems: on board charger, inductive charger, charging socket, power distribution</li> <li>▪ DC/DC, AC/DC converter and electronic control units</li> <li>▪ E-engine: rotor, stator/housing, sensors</li> <li>▪ Battery system: housing, cell module, battery electrics, mounting systems, cooling systems</li> <li>▪ Auxiliary equipment: air compressor, cooling pump, PTC heater</li> <li>➤ <b>New mobility offering significant growth potential for PBT and PA based applications</b></li> </ul>
 <p><b>Connectors</b>      <b>ECU</b>      <b>Charging Systems</b></p>	
 <p><b>Battery Systems</b>      <b>Power electronics</b></p>	

**Existing technologies and materials offer ideal preconditions for the promotion of new applications**

## Strong growth of engineering plastics per vehicle due to increasing electrification of powertrains



### Significant additional demand for PA and PBT in future mobility

\* Demand estimated on the basis of today's average 2l engine size. Downsizing effects for XHEVs will lead to reduced demand of UTH materials per vehicle in future

## “Under the Hood” market will remain robust whereas electric components will catch up by 2025

### Conclusions from market assessment

- Electrification will increase significantly in all regions
- Six focus applications for electrified powertrain identified – biggest potential in battery systems
- Global market for NeMo applications with significant volumes in 2025 – exceeding UTH in 2035

- 1 Battery System
- 2 DC/DC Converter & ECUs
- 3 e-Engine
- 4 Auxiliary Equipment
- 5 Power Electronics
- 6 Charging Systems

### 6 focus systems identified

### Huge potential for electric applications

Global HPM electric components [t]

Year	Internal Combustion Engine	Mild Hybrid EV	Full Hybrid EV	Plugin Hybrid EV	Battery Electric Vehicle
2016	High	Low	Low	Low	Low
2025	Low	Low	Low	Medium	Medium
2035	Low	Low	Low	High	High

Global HPM UTH volumes [t]

Year	Internal Combustion Engine	Mild Hybrid EV	Full Hybrid EV	Plugin Hybrid EV	Battery Electric Vehicle
2016	High	Low	Low	Low	Low
2025	Low	Low	Low	Medium	Medium
2035	Low	Low	Low	High	High

### “Under the Hood” remains attractive

Source: LMC Automotive, LANXESS volume estimates; \*Progressive LXS new Mobility Scenario

## High Performance Materials expects a strong growing market for its new thermoplastic composites material TEPEX® in the upcoming years



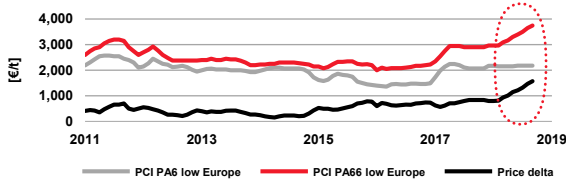
## High Performance Materials is already focusing on circularity alongside the entire value-chain

<b>PIR* from base resin production</b>	<ul style="list-style-type: none"> <li>High quality PA6 from internal production waste. However, due to high yields the amount of internal waste rather limited.</li> <li>Application in Durethan Q-Grades with 35% recycled PA for selected customers.</li> </ul>	
	<ul style="list-style-type: none"> <li>100% recycling of internal post-industrial glass waste</li> <li>Milling of glass waste and (re-)usage in                             <ul style="list-style-type: none"> <li>Durethan FR compounds</li> <li>Glass fiber production</li> </ul> </li> </ul>	
<b>"Green" compounds</b>	<ul style="list-style-type: none"> <li>Pocan ECO grades with minimum share of recycled PET from bottle scrap (25–30%)</li> <li>Standard EP compounds consist of up to 5% recycled production waste</li> </ul>	

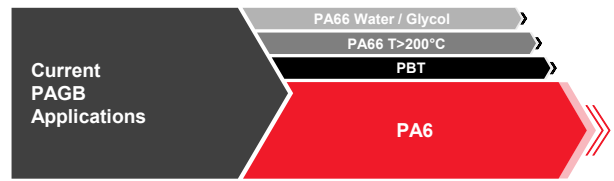
\* PIR = post-industrial recycle

## Switch potential due to higher price, lower supply security of PA66 and technical switch feasibility

### Development of PA6 & PA66 base resin market prices



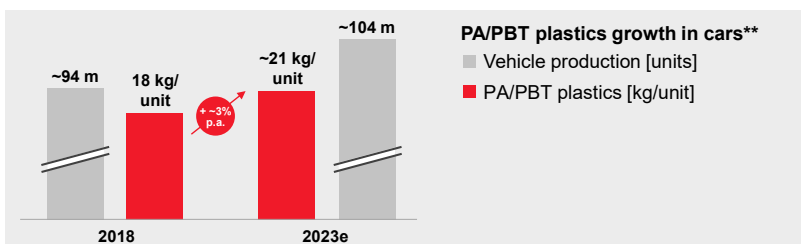
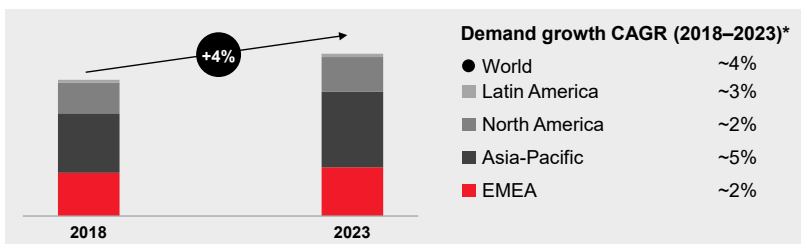
### PA6 or PBT can substitute PA66



- Increasing delta between PA6 and PA66 base resins driven by profit focus of Adiponitrile (AND) players
- Higher raw material price in PA66, driven by lack in material supply
- Historic price delta between PA6 and PA66 base resins

- General applications: In only two areas PA6 cannot fit as good as PA66
  - › Water glycol resistance above 120°C
  - › Temperatures above 200°C
- Electrical applications: Due to good electrical properties Polybutylene-ter-eptalate (PBT) can be a suitable substitute for E/E-Applications

## Sustainable long-term growth driven by ongoing electrification and industry trends in car manufacturing



Source: IHS Chemicals, LMC Automotive, PCI Nylon, LANXESS volume estimates;  
\* demand for PA6, PA66, PBT Engineering Plastics; \*\* demand growth through material substitution and new applications

### Market environment

- Strong global market position with knowledge leadership in high-tech plastics compounds
- Technology competence based on continuous product and application development
- Growth in important industries
  - Growing car demand, especially in BRICS and other developing areas
  - Growth of electrics & electronics industry driven by innovation and availability to more people

### Main competitors:

- BASF, DSM, DuPont

## High Performance Materials as leading provider of smart solutions for a sustainable future of mobility

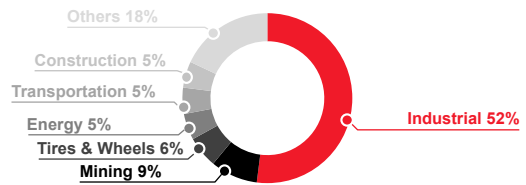
<b>High competence</b>	High-performance materials and high-end engineering know-how at its best
<b>Innovation focus</b>	Expertise in different industries and close customer cooperations translate into new applications
<b>Best in value</b>	Cost and performance optimized solutions ready for series production
<b>Smart Solutions</b>	Lightweight solutions to enable mobility trends – Innovative, flexible, fast
<b>Cost competitiveness</b>	Through fully integrated value chain, strong cost competitiveness is ensured



## Urethane Systems is a leading niche player in specialized and innovative urethane based products

Key facts	
▪ <b>Segment:</b>	Engineering Materials
▪ <b>Sales:</b>	<€500 m
▪ <b>Customers:</b>	~750
▪ <b>Products:</b>	>500
▪ <b>Production:</b>	6 sites
▪ <b>Research:</b>	1 R&D center
▪ <b>Employees:</b>	~400
▪ <b>Market position:</b>	#1 in hot cast elastomer systems
▪ <b>Business:</b>	One of the leading global manufacturers of urethane systems Technology leader in Low Free (LF) technology*

### Sales by end use 2018



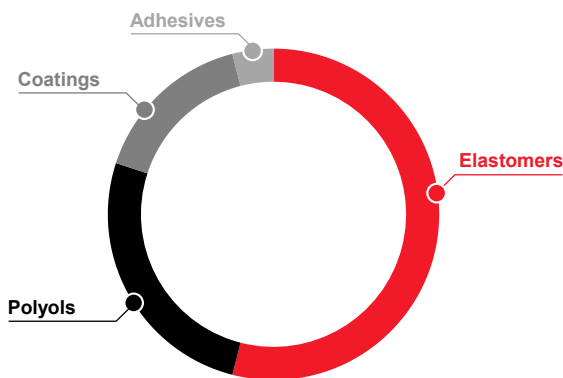
### Sales by region 2018



\* LF = low level of free isocyanates. This product segment of prepolymers meets or exceeds tightening health and safety regulations

## Urethane Systems – Stronghold in elastomers as highly specialized, customer-centric business

### Sales by application 2018



### Main characteristics

#### Elastomers focus with leading position

- Strong presence in technically demanding elastomer applications (esp. Oil & Gas, Tyres & Wheels) with high level of customer specific development work
- Demand above GDP driven by increasing automation, replacement of rubber by PU, shifting of mechanical boundaries
- Best position to serve global customers consistently





#### Elastomer know-how being leveraged to coating and adhesive applications (esp. LF technology)

**Polyols as intermediate business with leading regional position in North America – primarily focused on downstream CASE applications**

















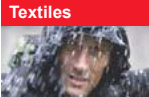



\* LF = low level of free isocyanates. This product segment of prepolymers meets or exceeds tightening health and safety regulations



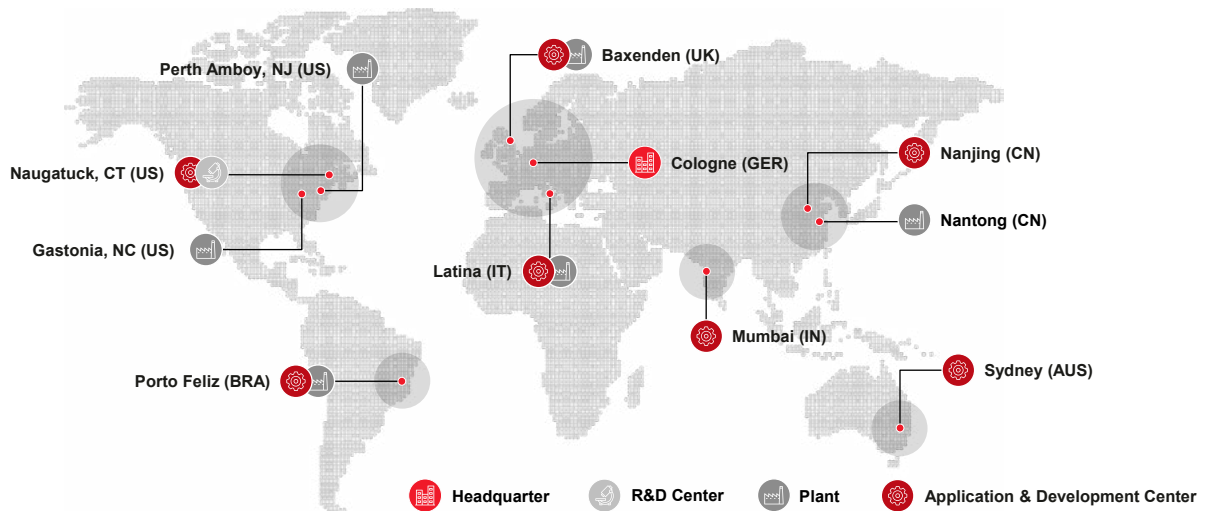
## High-quality solutions are provided for four main product areas

Cast Elastomers	Coatings	Adhesives & Sealants	Polyester Polyols
<p><b>Products</b></p> <ul style="list-style-type: none"><li>Adiprene® LF</li><li>Vibrathane®</li><li>Adiprene®</li><li>Vibracure®</li><li>Duracure®</li><li>Vibracat®</li><li>Ultralast®</li></ul>	<p><b>Products</b></p> <ul style="list-style-type: none"><li>Trixene®</li><li>Witcoflex®</li><li>Witcobond®</li><li>Quasilan®</li></ul>	<p><b>Products</b></p> <ul style="list-style-type: none"><li>Trixene®</li><li>Witcoflex®</li><li>Witcobond®</li><li>Quasilan®</li><li>Adiprene® LF</li></ul>	<p><b>Products</b></p> <ul style="list-style-type: none"><li>Fomrez®</li></ul>
<p><b>Key applications</b></p> <ul style="list-style-type: none"><li>Oil &amp; Gas</li><li>Mining</li><li>Wheels &amp; Tires</li><li>Paper &amp; Printing</li><li>Industrial</li></ul>	<p><b>Key applications</b></p> <ul style="list-style-type: none"><li>Leather &amp; Textile</li><li>Glass fiber sizing</li><li>Breathable coatings</li><li>Automotive coatings</li><li>Protective coatings</li></ul>	<p><b>Key applications</b></p> <ul style="list-style-type: none"><li>Field applied ambient cured adhesives &amp; sealants</li><li>Factory applied heat cured adhesives &amp; sealants</li></ul>	<p><b>Key applications</b></p> <ul style="list-style-type: none"><li>PU foam, TPU and elastomer production</li><li>Adhesives for metals, paper and wood</li><li>Protective coatings</li></ul>
			

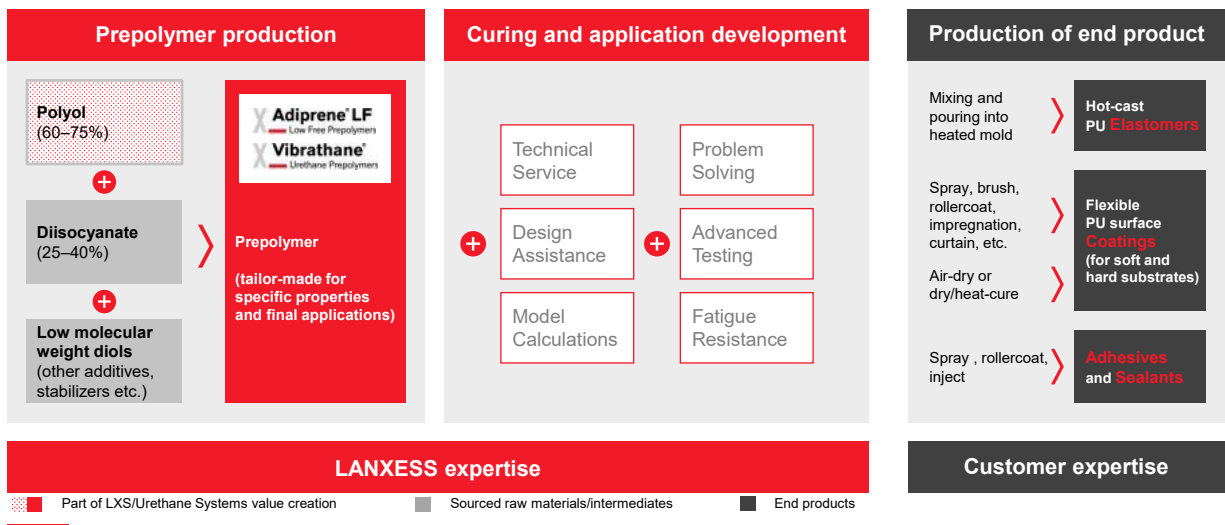
## Urethane Systems offers materials for a very diverse set of applications

Thickness	Wheels	Mining	Subsea Oil & Gas	Oil Pipelining	Cosmetics	Agriculture	Infrastructure
100 mm							
	Machinery	Cosmetics	Seals	Paper	Food	Belts	Concrete Molds
							
	Electronics	Sports Track	Abrasives	Carpet Underlay	Medical	Fabric Belts	Ballistics
							
	Sealants	Textiles	Coil Coatings	Adhesives	Construction	Automotive	Metal Protection
<0,1 mm							

## Urethane Systems – Local coverage for a global customer base



## A world leader in specialized systems for urethane elastomers, coatings, adhesives and sealants



## Our innovation priorities follow needs for better sustainability & processing and increasing performance

<b>Improved sustainability</b>	<ul style="list-style-type: none"> <li>▪ Improve Low Free (LF) technologies</li> <li>▪ Develop new curing systems (e.g. MbOCA* Replacement)</li> <li>▪ Strengthen offering of waterborne, solvent-free products (Witcobond® PUD, Trixene Aqua® blocked crosslinkers)</li> </ul>
<b>Easier processing</b>	<ul style="list-style-type: none"> <li>▪ Develop low viscosity systems for use in cold cast, encapsulation, adhesives, binders, and other applications</li> <li>▪ Enable processing advantages to cast polyurethane processors (e.g. Ribbon Flow®)</li> </ul>
<b>Increasing material requirements</b>	<ul style="list-style-type: none"> <li>▪ Develop and tailor high-performing cast systems to extend the usable life of urethane components and to replace non-cast materials</li> <li>▪ Develop thermoplastic polyurethanes for extreme applications (Ultrast® TPU)</li> </ul>



\* MbOCA = curing agent used primarily to produce castable polyurethane parts. It is classified as cancerous and will be banned in the EU

## Urethane Systems enables performance through innovative product developments

### Urethane Systems' sustainable chemistry

- General trend to lower free isocyanate content in urethanes and use of modern curing systems
- LANXESS is the only manufacturer of Low Free (LF) products across all chemistries (TDI, MDI, PPDI, HDI, and IPDI)
- Adiprene LF is a unique technology that complies with the new regulations and labeling requirements

### Adiprene LF MDI is a premium MbOCA-Replacement technology\*

<b>MbOCA-Free</b>	» Adiprene is a premium option for MbOCA-free systems
<b>Premium performance</b>	» End product performance is enhanced by LF technology, especially for high-performance wheels, subsea oil and gas, and rollers for paper and steel manufacture
<b>Improved processing</b>	» Adiprene LF has a processing advantage versus other MbOCA-free alternatives because it can be used on existing machinery



\* MbOCA = curing agent used primarily to produce castable polyurethane parts. It is classified as cancerous and will be banned in the EU

## Urethane Systems grows on the back of product innovation and by entering new markets

### Market development

**General demand growth\* (CAGR 2018–2023)**

Region	CAGR 2018–2023
APAC	>4%
NORAM	>3%
EMEA	~3%
LATAM	>2%

- New products for new markets drive growth
- **Example:** Unique high performance blocked, 1K systems
  - Based on LF technology, delivers unsurpassed industrial hygiene, processing ease, and properties unattainable by conventional systems
  - LANXESS is delivering these new products to the elastomers and coatings markets

\* LANXESS estimation

### Market environment

**Supporting industry trends**

- Substitution of competing materials such as rubber, metal and epoxy due to performance advantages of cast urethane elastomers
- Trend towards use of sustainable chemicals supporting low-free technology (reduces fume exposure during handling)

**Main competitors**

▪ Covestro (CAS)	▪ COIM
▪ BASF (Elastollan)	▪ Huntsman (Tecnoelastomeri)
▪ DOW (Hyperlast)	▪ DIC
▪ Dongda	▪ Mitsui Chemicals

## Urethanes Systems – A global leader with sustainable growth and significant future business success

Leadership position

**A global leader in specialty polyurethane systems providing differentiated technologies**

Innovation driver

**Focus on innovative, premium technologies for demanding applications based on current trends**

Sustainable solutions

**Sustainability as key principle in action with LF technology, wind, recycling, etc.**

# FINANCIALS

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## Conservative financial policy and centralized risk management

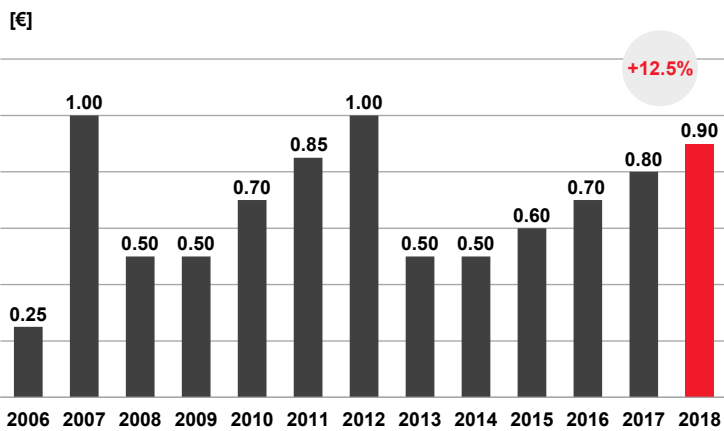
- Centralized management of all relevant risks
  - Liquidity & refinancing
  - Foreign exchange, interest rates and commodity risk
  - Counterparty risk
  - Customer credit risk
  - Insurances
- Pension risk management



Our active risk management aims at the reduction of financial and operational volatilities

## Shareholders benefit from rising dividend and share buy-back

A reliable income stream for investors

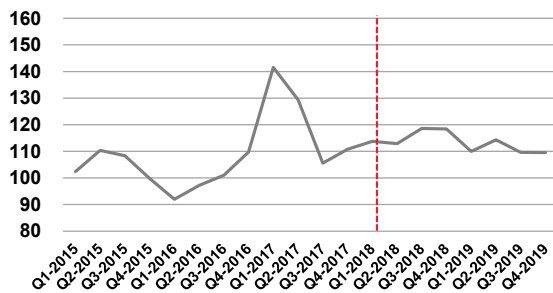


**Dividend Policy**

- LANXESS has been pursuing a consistent dividend policy for years
- Our goal remains to increase the dividend each year or at least to keep it at a stable level

## Raw material prices stable, showing substantially lower volatility

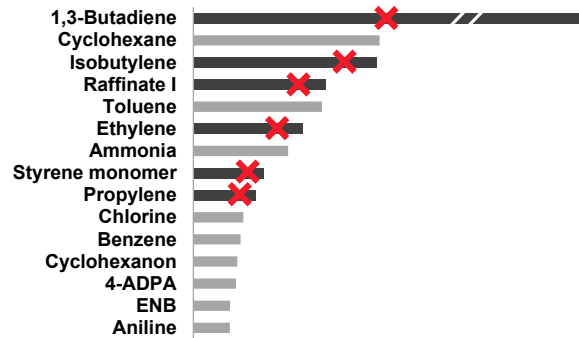
LANXESS global raw materials index\*



Lower volatility in raw material basket clearly visible (w/o ARL since Q2 2018)

\* average 2013 = 100%

Total raw material expenses (2017)



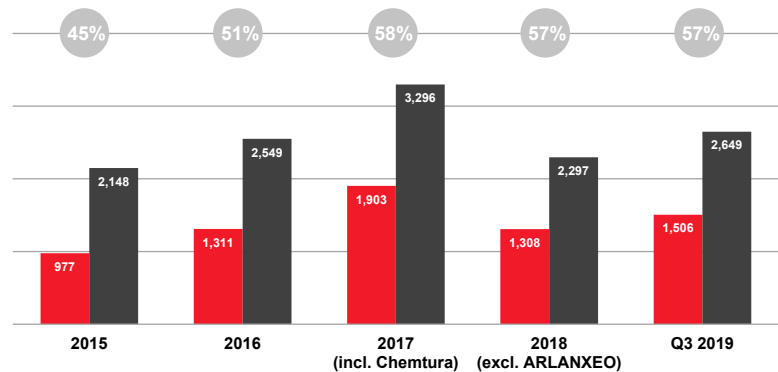
LANXESS no longer dependent on few raw materials

## Stable funded status of pensions

Pension debt actively and well managed\*

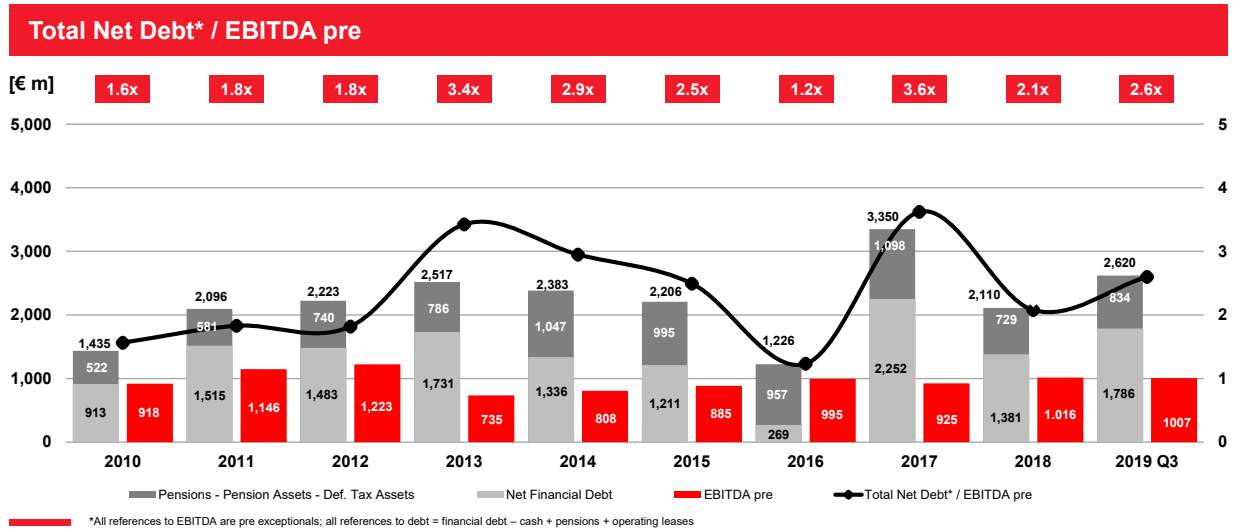
- Group wide funding ratio of 57%
- Pension obligations significantly decreased with ARLANXEO disposal
- Like 2016, €200 m pension funding in German CTA in December 2018
- Continued active risk management (e.g. liability matching, tail risk hedging of German CTA, outsourcing)
- On-going monitoring and optimization of pension structure

Funded Status

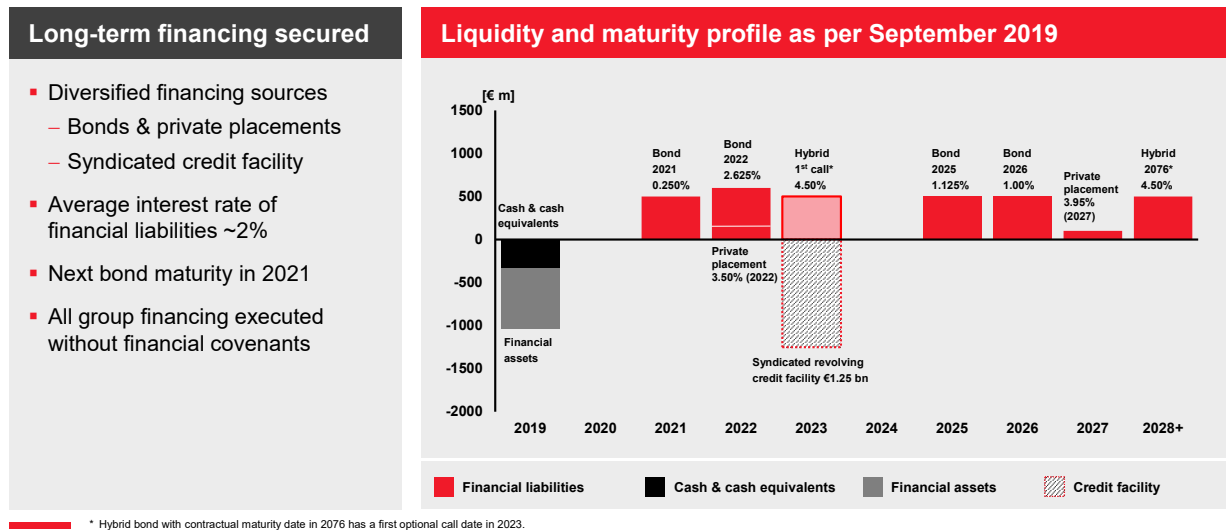


\* Figures in million €

## LANXESS manages its net financial debt tightly

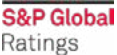




## Maturity profile actively managed and well balanced





## All three public ratings were upgraded after announcement of full ARLANXEO disposal

Credit rating history						
	2014	2015	2016	2017	2018	2019
	<b>BBB-/ stable</b> 19.05.2014	<b>BBB-/ positive</b> 24.09.2015	<b>BBB-/ negative</b> 26.09.2016	<b>BBB-/ stable</b> 31.07.2017	<b>BBB/ stable</b> 16.10.2018	<b>BBB/ stable</b> 05.09.2019
	<b>Baa3/ stable</b> 20.06.2014	<b>Baa3/ stable</b> 24.09.2015	<b>Baa3/ stable</b> 18.10.2016	<b>Baa3/ stable</b> 18.10.2017	<b>Baa2/ stable</b> 23.08.2018	<b>Baa2/ stable</b> 26.08.2019
					<b>BBB+/ stable</b> 15.08.2018	<b>BBB+/ stable</b> 23.07.2019

**Investment grade rated since spin-off in 2004**

## Agencies honor LANXESS' realignment process and management's commitment to maintain IG

 5 September 2019	<ul style="list-style-type: none"> <li>The company's portfolio realignment will bring higher and more stable margins.</li> <li>We believe LANXESS' management is committed to preserving its leverage metrics after the ARLANXEO disposal.</li> <li>We expect the company's credit metrics to temporarily weaken in 2019 and strengthen in 2020.</li> </ul>	Standard & Poor's <b>BBB</b>
 26 August 2019	<ul style="list-style-type: none"> <li>Portfolio realignment to enhance the business risk profile and future quality of earnings and cash flow, with more emphasis on specialty chemicals.</li> <li>Positive free cash flow and proceeds from Currenta and Arlanxeo divestment to help reduce leverage following the Chemtura acquisition and build capacity within the current rating category.</li> </ul>	Moody's <b>Baa2</b>
 23 July 2019	<ul style="list-style-type: none"> <li>The rating still reflects LANXESS' strong position across various medium-sized and niche specialty chemicals markets [...]</li> <li>Regarding the improved end-market mix, we consider the financial risk profile to be less sensitive to more challenging economic conditions.</li> </ul>	Scope Ratings <b>BBB+</b>

Source: Rating Agencies

## Evolving financials since 2009

[€ m]	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
EBITDA pre	465	918	1,146	1,223	735	808	885	995	925	1,016
Net financial debt	794	913	1,515	1,483	1,731	1,336	1,211	269	2,252	1,381
Net financial debt/ EBITDA pre	1.7x	1.0x	1.3x	1.2x	2.4x	1.7x	1.4x	0.3x	1.7x	1.4x
Gearing [%]	55	52	73	64	91	62	52	7	66	50
EPS pre [€]*	N/A	N/A	N/A	N/A	1.73	2.22	2.03	2.69	3.84	4.45
Dividend [€]	0.50	0.70	0.85	1.00	0.50	0.50	0.60	0.70	0.80	0.90

### LANXESS' key financials

\* Change in EPS definition: EPS pre exceptional items and amortization of intangible assets: earnings per share disregarding exceptional charges and income, amortization of intangible assets and attributable tax effects as well as (only in 2017) non-recurring earnings effects of the U.S. tax reform, from 2017 onwards continuing operations only. **Note:** Additional financial information available at: <http://lanxess.com/en/corporate/investor-relations/financials/>

## Balance sheet

Balance Sheet- LANXESS (€ m)	Sept 30, 2019	June 30, 2019	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2015	Dec. 31, 2014	Dec. 31, 2013	Dec. 31, 2012	Dec. 31, 2011	Dec. 31, 2010	Dec. 31, 2009*
Intangible assets	1.811	1.755	1.764	1.769	494	300	320	323	390	373	226	196
Property, plant and equipment	2.765	2.716	2.577	4.059	3.519	3.447	3.333	2.903	2.994	2.679	2.131	1.809
Investment accounted for using the equity method	0	0	0	0	0	0	0	12	8	12	13	26
Investments in other affiliated companies	2	2	2	9	12	12	13	13	18	19	8	1
Non-current derivative assets	0	1	0	7	1	1	5	20	16	8	3	16
Other non-current financial assets	26	25	25	20	19	21	11	11	8	82	74	79
Deferred taxes	324	307	287	442	442	361	380	254	211	196	170	163
Other non-current assets	139	133	131	133	32	38	39	56	102	120	113	92
<b>Non-current assets</b>	<b>5.067</b>	<b>4.939</b>	<b>4.786</b>	<b>6.439</b>	<b>4.519</b>	<b>4.180</b>	<b>4.101</b>	<b>3.592</b>	<b>3.747</b>	<b>3.489</b>	<b>2.738</b>	<b>2.382</b>
Inventories	1.423	1.395	1.347	1.680	1.429	1.349	1.384	1.299	1.527	1.386	1.094	849
Trade receivables	905	924	903	1.316	1.088	956	1.015	1.070	1.117	1.146	942	733
Near cash assets	0	0	0	50	40	100	100	106	411	350	364	402
Cash and cash equivalents	338	229	797	538	355	366	418	427	386	178	160	313
Current derivative assets	11	4	4	45	65	14	14	58	28	8	19	29
Other current financial assets	771	775	598	7	2.130	4	5	6	6	27	58	146
Other current assets	320	318	252	321	251	250	213	253	297	294	291	214
Assets from discontinued operations	0	0	-	-	-	-	-	-	-	-	-	-
<b>Current assets</b>	<b>3.768</b>	<b>3.645</b>	<b>3.901</b>	<b>3.957</b>	<b>5.358</b>	<b>3.039</b>	<b>3.149</b>	<b>3.219</b>	<b>3.772</b>	<b>3.389</b>	<b>2.928</b>	<b>2.686</b>
<b>Total assets</b>	<b>8.835</b>	<b>8.584</b>	<b>8.687</b>	<b>10.396</b>	<b>9.877</b>	<b>7.219</b>	<b>7.250</b>	<b>6.811</b>	<b>7.519</b>	<b>6.878</b>	<b>5.666</b>	<b>5.068</b>
Capital stock and capital reserves	1.117	1.317	1.317	1.317	1.317	1.317	1.317	889	889	889	889	889
Other reserves	1.640	1.483	1.391	1.381	1.257	1.313	1.253	1.690	1.238	943	699	818
Net income	253	184	431	87	192	165	47	-159	508	506	379	40
Other equity components	-218	-326	-359	-498	-214	-485	-458	-525	-321	-280	-221	-315
Equity attributable to non-controlling interests	-12	-10	-7	1.126	1.176	13	2	5	16	16	15	13
<b>Stockholders equity</b>	<b>2.780</b>	<b>2.648</b>	<b>2.773</b>	<b>3.413</b>	<b>3.728</b>	<b>2.323</b>	<b>2.161</b>	<b>1.900</b>	<b>2.330</b>	<b>2.074</b>	<b>1.761</b>	<b>1.445</b>
Provisions for pensions and other post-employment benefits	1.242	1.170	1.083	1.490	1.249	1.215	1.290	943	893	679	605	569
Other non-current provisions	338	351	337	460	319	271	275	258	304	331	351	307
Non-current derivative liabilities	6	2	3	2	7	19	20	12	4	13	11	4
Other non-current financial liabilities	2.782	2.784	2.686	2.242	2.734	1.258	1.698	1.649	2.167	1.465	1.302	1.462
Non-current income tax liabilities	124	121	117	119	31	19	25	49	35	63	50	47
Other non-current liabilities	72	73	80	99	93	108	118	89	74	89	95	77
Deferred taxes	97	93	89	113	83	46	21	29	82	75	40	38
<b>Non-current liabilities</b>	<b>4.661</b>	<b>4.594</b>	<b>4.395</b>	<b>4.525</b>	<b>4.516</b>	<b>2.936</b>	<b>3.447</b>	<b>3.029</b>	<b>3.559</b>	<b>2.715</b>	<b>2.454</b>	<b>2.504</b>
Other current provision	433	380	465	525	406	411	350	355	440	446	422	352
Current derivative liabilities	27	19	25	12	42	100	101	22	10	40	23	26
Other current financial liabilities	73	64	59	633	78	443	182	668	167	633	176	94
Trade payables	689	708	795	1.048	889	779	799	690	795	766	664	486
Current income tax liabilities	45	42	44	61	44	85	44	21	45	49	34	52
Other current liabilities	127	129	131	179	174	142	166	126	173	155	132	109
Liabilities from discontinued operations	0	0	-	-	-	-	-	-	-	-	-	-
<b>Current liabilities</b>	<b>1.394</b>	<b>1.342</b>	<b>1.519</b>	<b>2.458</b>	<b>1.633</b>	<b>1.960</b>	<b>1.642</b>	<b>1.882</b>	<b>1.630</b>	<b>2.089</b>	<b>1.451</b>	<b>1.119</b>
<b>Total equity and liabilities</b>	<b>8.835</b>	<b>8.584</b>	<b>8.687</b>	<b>10.396</b>	<b>9.877</b>	<b>7.219</b>	<b>7.250</b>	<b>6.811</b>	<b>7.519</b>	<b>6.878</b>	<b>5.666</b>	<b>5.068</b>

\* SORIE Restatement

# P&L

P&L Statement LANXESS (€ m)	9M 19	H1 19	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
<b>Net sales</b>	<b>5.413</b>	<b>3.632</b>	<b>7.197</b>	<b>6.530</b>	<b>7.699</b>	<b>7.902</b>	<b>8.006</b>	<b>8.300</b>	<b>9.094</b>	<b>8.775</b>	<b>7.120</b>	<b>5.057</b>
Cost of goods sold	-3.979	-2.666	-5.363	-4.796	-5.945	-6.154	-6.418	-6.752	-6.988	-6.765	-5.381	-3.956
<b>Gross Profit</b>	<b>1.434</b>	<b>966</b>	<b>1.834</b>	<b>1.734</b>	<b>1.754</b>	<b>1.748</b>	<b>1.588</b>	<b>1.548</b>	<b>2.106</b>	<b>2.010</b>	<b>1.739</b>	<b>1.101</b>
<b>Gross Margin</b>	<b>26,5%</b>	<b>26,6%</b>	<b>25,5%</b>	<b>26,6%</b>	<b>22,8%</b>	<b>22,1%</b>	<b>19,8%</b>	<b>18,7%</b>	<b>23,2%</b>	<b>22,9%</b>	<b>24,4%</b>	<b>21,8%</b>
Selling expenses	-658	-444	-826	-761	-781	-759	-742	-755	-763	-732	-646	-530
R&D expenses	-90	-59	-118	-103	-131	-130	-160	-186	-192	-144	-116	-101
G&A expenses	-203	-135	-307	-326	-303	-284	-278	-301	-339	-325	-298	-235
Other operating income	66	50	122	164	147	207	118	128	186	179	189	237
Other operating expenses	-150	-96	-201	-409	-222	-367	-308	-527	-190	-212	-261	-323
Other operating income - net	-84	-46	-79	-245	-75	-160	-190	-399	-4	-33	-72	-86
<b>Operating Result (EBIT)</b>	<b>399</b>	<b>282</b>	<b>504</b>	<b>299</b>	<b>464</b>	<b>415</b>	<b>218</b>	<b>-93</b>	<b>808</b>	<b>776</b>	<b>607</b>	<b>149</b>
Income/expense from investments in affiliated companies - net	0	0	0	0	0	0	2	0	1	7	16	8
Interest expense - net	-44	-29	-69	-80	-63	-66	-69	-106	-96	-93	-83	-73
Other financial result - net	-1	5	-45	0	-62	-61	-71	-40	-53	-35	-47	-52
<b>Financial result</b>	<b>-45</b>	<b>-24</b>	<b>-114</b>	<b>-80</b>	<b>-125</b>	<b>-127</b>	<b>-138</b>	<b>-146</b>	<b>-148</b>	<b>-121</b>	<b>-114</b>	<b>-117</b>
<b>Earnings before taxes (EBT)</b>	<b>354</b>	<b>258</b>	<b>390</b>	<b>219</b>	<b>339</b>	<b>288</b>	<b>80</b>	<b>-239</b>	<b>660</b>	<b>655</b>	<b>493</b>	<b>32</b>
Income taxes	-106	-77	-118	-159	-144	-121	-36	71	-151	-148	-112	7
<b>Earnings after taxes from continued operations</b>	<b>248</b>	<b>181</b>	<b>272</b>	<b>60</b>	<b>195</b>	<b>167</b>	<b>44</b>	<b>-168</b>	<b>509</b>	<b>507</b>	<b>381</b>	<b>39</b>
<b>Earnings after taxes from discontinued operations</b>	<b>0</b>	<b>0</b>	<b>251</b>	<b>64</b>								
<b>Earnings after taxes total</b>	<b>248</b>	<b>181</b>	<b>523</b>	<b>124</b>								
Minorities	-5	-3	92	37	3	2	3	9	-1	-1	-2	1
<b>Net income (loss)</b>	<b>253</b>	<b>184</b>	<b>431</b>	<b>87</b>	<b>192</b>	<b>165</b>	<b>47</b>	<b>-159</b>	<b>508</b>	<b>506</b>	<b>379</b>	<b>40</b>
EPS	2,85	2,06	4,71	0,95	2,10	1,80	0,53	-1,91	6,11	6,08	4,56	0,48
EPS pre	4,01	2,79	*	*	2,69	2,03	2,22	1,73	6,44			
<b>EBIT</b>	<b>399</b>	<b>282</b>	<b>504</b>	<b>299</b>	<b>464</b>	<b>415</b>	<b>218</b>	<b>-93</b>	<b>808</b>	<b>776</b>	<b>607</b>	<b>149</b>
EBITDA	755	517	935	709	945	833	644	624	1.186	1.101	890	422
Exceptionals	76	47	91	259	50	7	184	381	39	50	28	55
D&A in exceptionals	3	3	10	43	0	-45	20	270	2	5	0	12
<b>EBITDA pre exceptionals</b>	<b>828</b>	<b>561</b>	<b>1.016</b>	<b>925</b>	<b>995</b>	<b>885</b>	<b>808</b>	<b>735</b>	<b>1.223</b>	<b>1.146</b>	<b>918</b>	<b>465</b>

\* not disclosed on group level due to exit of ARLANXEO,  
which exited 31.12.2018 / 2017 figures restated

## Segment data

Advanced Intermediates Key Figures (€ m)	9M 19	H1 19	Q1 19	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
<b>Sales</b>	<b>1.696</b>	<b>1.147</b>	<b>586</b>	<b>2.207</b>	<b>1.975</b>	<b>1.742</b>	<b>1.826</b>	<b>1.847</b>	<b>1.858</b>	<b>1.893</b>	<b>1.786</b>	<b>1.630</b>	<b>1.265</b>
<b>EBIT</b>	<b>201</b>	<b>148</b>	<b>80</b>	<b>232</b>	<b>211</b>	<b>223</b>	<b>258</b>	<b>202</b>	<b>146</b>	<b>224</b>	<b>184</b>	<b>204</b>	<b>76</b>
Depreciation & Amortization	109	73	34	127	117	105	80	93	115	78	80	66	56
<b>EBITDA</b>	<b>310</b>	<b>221</b>	<b>114</b>	<b>359</b>	<b>328</b>	<b>328</b>	<b>338</b>	<b>295</b>	<b>261</b>	<b>302</b>	<b>264</b>	<b>270</b>	<b>132</b>
Exceptionals (EBIT relevant)	0	0	0	0	7	-2	-18	13	52	7	23	1	11
D&A in exceptionals	0	0	0	0	0	0	-19	0	30	2	4	0	0
<b>EBITDA pre exceptionals</b>	<b>310</b>	<b>221</b>	<b>114</b>	<b>359</b>	<b>335</b>	<b>326</b>	<b>339</b>	<b>308</b>	<b>283</b>	<b>307</b>	<b>283</b>	<b>271</b>	<b>143</b>

Specialty Additives new Key Figures (€ m)	9M 19	H1 19	Q1 19	2018	2017	2016
<b>Sales</b>	<b>1.494</b>	<b>991</b>	<b>485</b>	<b>1.980</b>	<b>1.611</b>	<b>841</b>
<b>EBIT</b>	<b>143</b>	<b>91</b>	<b>45</b>	<b>204</b>	<b>56</b>	<b>123</b>
Depreciation & Amortization	117	77	37	136	136	28
<b>EBITDA</b>	<b>260</b>	<b>168</b>	<b>82</b>	<b>340</b>	<b>192</b>	<b>151</b>
Exceptionals (EBIT relevant)	11	6	1	3	111	0
D&A in exceptionals	2	2	0	0	36	0
<b>EBITDA pre exceptionals</b>	<b>269</b>	<b>172</b>	<b>83</b>	<b>343</b>	<b>267</b>	<b>151</b>

Performance Chemicals restated Key Figures (€ m)	9M 19	H1 19	Q1 19	2018	2017	2016
<b>Sales</b>	<b>1.057</b>	<b>703</b>	<b>347</b>	<b>1.349</b>	<b>1.439</b>	<b>1.301</b>
<b>EBIT</b>	<b>100</b>	<b>67</b>	<b>29</b>	<b>99</b>	<b>108</b>	<b>154</b>
Depreciation & Amortization	64	42	21	85	82	66
<b>EBITDA</b>	<b>164</b>	<b>109</b>	<b>50</b>	<b>184</b>	<b>190</b>	<b>220</b>
Exceptionals (EBIT relevant)	6	5	4	13	68	3
D&A in exceptionals	0	0	0	10	6	0
<b>EBITDA pre exceptionals</b>	<b>170</b>	<b>114</b>	<b>54</b>	<b>187</b>	<b>252</b>	<b>223</b>

Engineering Materials Key Figures (€ m)	9M 19	H1 19	Q1 19	2018	2017	2016	2015
<b>Sales</b>	<b>1.100</b>	<b>747</b>	<b>382</b>	<b>1.576</b>	<b>1.366</b>	<b>1.056</b>	<b>1.085</b>
<b>EBIT</b>	<b>141</b>	<b>98</b>	<b>49</b>	<b>205</b>	<b>151</b>	<b>114</b>	<b>85</b>
Depreciation & Amortization	48	32	16	61	56	45	46
<b>EBITDA</b>	<b>189</b>	<b>130</b>	<b>65</b>	<b>266</b>	<b>207</b>	<b>159</b>	<b>131</b>
Exceptionals (EBIT relevant)	0	0	0	1	13	0	-19
D&A in exceptionals	0	0	0	0	1	0	1
<b>EBITDA pre exceptionals</b>	<b>189</b>	<b>130</b>	<b>65</b>	<b>267</b>	<b>219</b>	<b>159</b>	<b>111</b>

Reconciliation Key Figures (€ m)	9M 19	H1 19	Q1 19	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
<b>Sales</b>	<b>66</b>	<b>44</b>	<b>22</b>	<b>85</b>	<b>139</b>	<b>49</b>	<b>47</b>	<b>42</b>	<b>35</b>	<b>41</b>	<b>41</b>	<b>39</b>	<b>35</b>
<b>EBIT</b>	<b>-186</b>	<b>-122</b>	<b>-64</b>	<b>-236</b>	<b>-227</b>	<b>-305</b>	<b>-348</b>	<b>-260</b>	<b>-240</b>	<b>-212</b>	<b>-208</b>	<b>-211</b>	<b>-151</b>
Depreciation & Amortization	18	11	6	22	19	17	23	20	24	15	16	17	17
<b>EBITDA</b>	<b>-168</b>	<b>-111</b>	<b>-58</b>	<b>-214</b>	<b>-208</b>	<b>-288</b>	<b>-325</b>	<b>-240</b>	<b>-216</b>	<b>-197</b>	<b>-192</b>	<b>-194</b>	<b>-134</b>
Exceptionals (EBIT relevant)	59	36	17	74	60	51	43	79	45	17	18	24	18
D&A in exceptionals	1	1	0	0	0	0	0	0	0	0	1	0	5
<b>EBITDA pre exceptionals</b>	<b>-110</b>	<b>-76</b>	<b>-41</b>	<b>-140</b>	<b>-148</b>	<b>-237</b>	<b>-282</b>	<b>-161</b>	<b>-171</b>	<b>-180</b>	<b>-175</b>	<b>-170</b>	<b>-121</b>

## Cash Flow Statement

Cash Flow Statement LANXESS (€ m)	9M 19	H1 19	2018	2017	2016	2015	2014	2013
<b>Income before income taxes</b>	<b>354</b>	<b>258</b>	<b>390</b>	<b>219</b>	<b>339</b>	<b>288</b>	<b>80</b>	<b>-239</b>
Depreciation and amortization	356	235	431	410	481	418	426	717
Financial losses (gains)	24	8	63	35	56	66	75	111
Income taxes paid	-154	-114	-156	-139	-184	-98	-31	-41
Working Capital changes	-154	-149	-165	-66	-47	93	147	110
Others	-57	-124	-91	109	44	-75	100	-17
<b>Operating cash flow - continued operations</b>	<b>369</b>	<b>114</b>	<b>472</b>	<b>568</b>				
<b>Operating cash flow - discontinued operations</b>	<b>-</b>	<b>-</b>	<b>114</b>	<b>300</b>				
<b>Operating cash flow - total</b>	<b>369</b>	<b>114</b>	<b>586</b>	<b>868</b>	<b>689</b>	<b>692</b>	<b>797</b>	<b>641</b>
<b>Investing cash flow - continued operations</b>	<b>-435</b>	<b>-313</b>	<b>65</b>	<b>-22</b>				
<b>Investing cash flow - discontinued operations</b>	<b>-</b>	<b>-</b>	<b>-169</b>	<b>-145</b>				
<b>Investing cash flow - total</b>	<b>-435</b>	<b>-313</b>	<b>-104</b>	<b>-167</b>	<b>-2.879</b>	<b>-400</b>	<b>-587</b>	<b>-342</b>
<b>~ thereof CAPEX</b>	<b>-305</b>	<b>-184</b>	<b>-497</b>	<b>-397</b>	<b>-439</b>	<b>-434</b>	<b>-614</b>	<b>-624</b>
<b>Financing cash flow - continued operations</b>	<b>-395</b>	<b>-370</b>	<b>-160</b>	<b>-545</b>				
<b>Financing cash flow - discontinued operations</b>	<b>-</b>	<b>-</b>	<b>-57</b>	<b>37</b>				
<b>Financing cash flow - total</b>	<b>-395</b>	<b>-370</b>	<b>-217</b>	<b>-508</b>	<b>2.173</b>	<b>-333</b>	<b>-222</b>	<b>-260</b>
Free Cash Flow	64	-70	89	471	250	258	183	17

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